

KIC 009654875

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
009654875-01	OBS	2272.01	1.341532	132.654755	19.2	7.102	16.7	18.0	2.39	7495	1.09	19557.96
009654875-02	OBS	No	190.756774	251.408199	80.3	18.633	17.9	5.6	2.39	7495	2.34	26.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009654875-01	OBS	FP	0.04	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
009654875-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

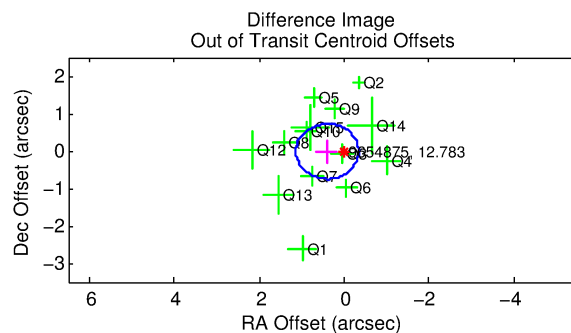
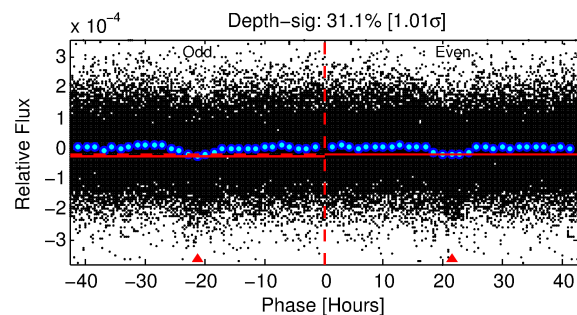
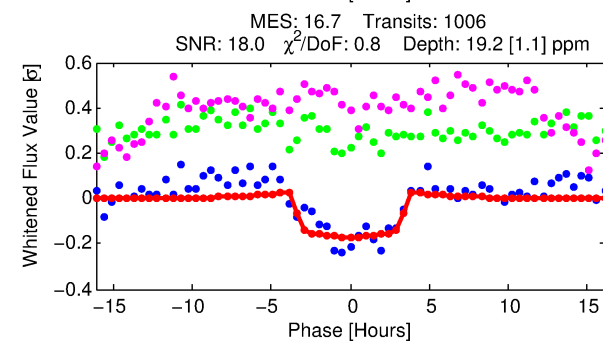
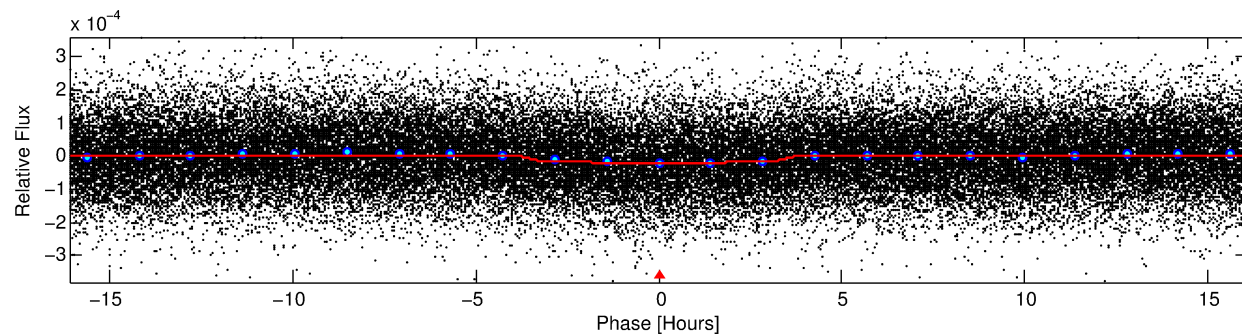
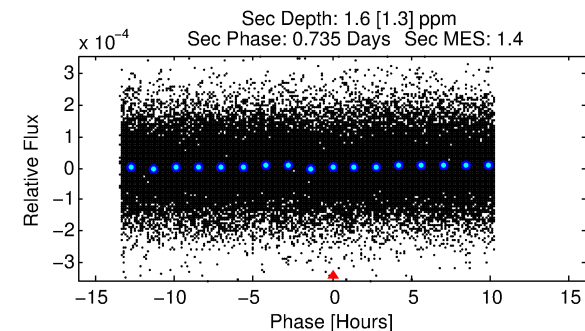
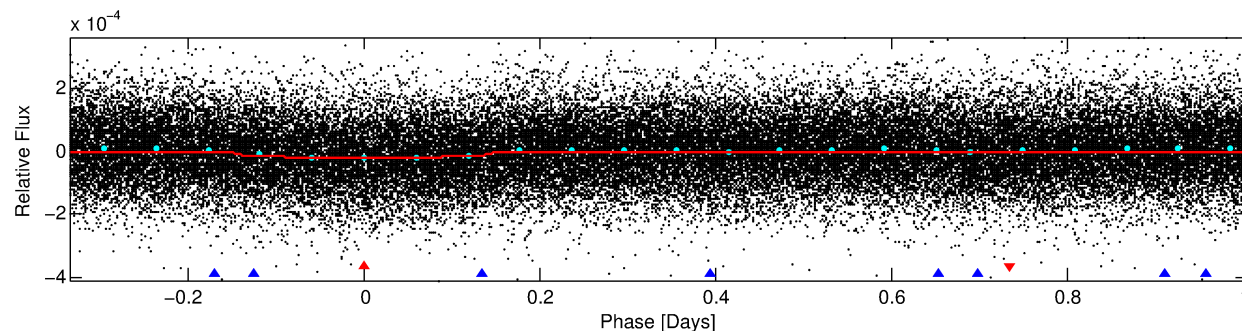
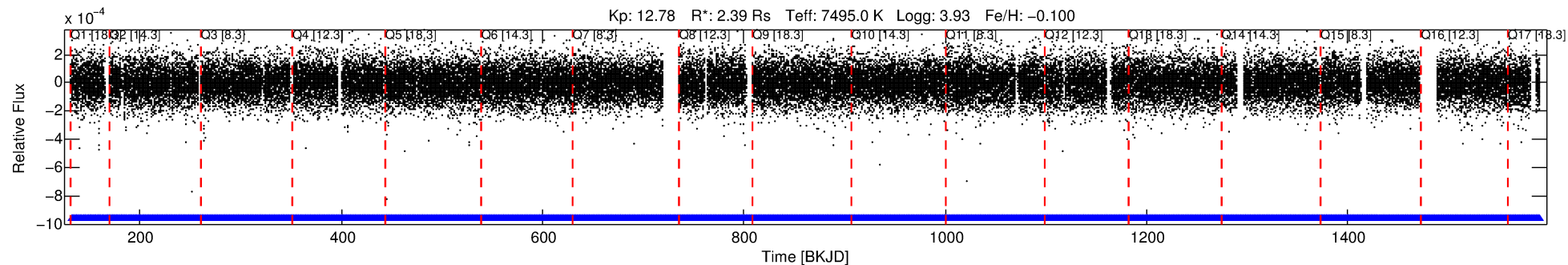
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009654875-01

No Significant Match Found

DV One-Page Summary

KIC: 9654875 Candidate: 1 of 2 Period: 1.342 d
KOI: K02272.01 Corr: 0.812



DV Fit Results:

Period = 1.34153 [0.00001] d
Epoch = 132.6548 [0.0034] BKJD
Rp/R* = 0.0042 [0.0011]
a/R* = 1.45 [1.23]
b = 0.51 [2.38]
Seff = 19557.95 [9787.09]
Teq = 3015 [377] K
Rp = 1.09 [0.48] Re
a = 0.0287 [0.0090] AU
Ag = 0.62 [0.68] [−0.57σ]
Teffp = 4133 [1034] K [1.02σ]

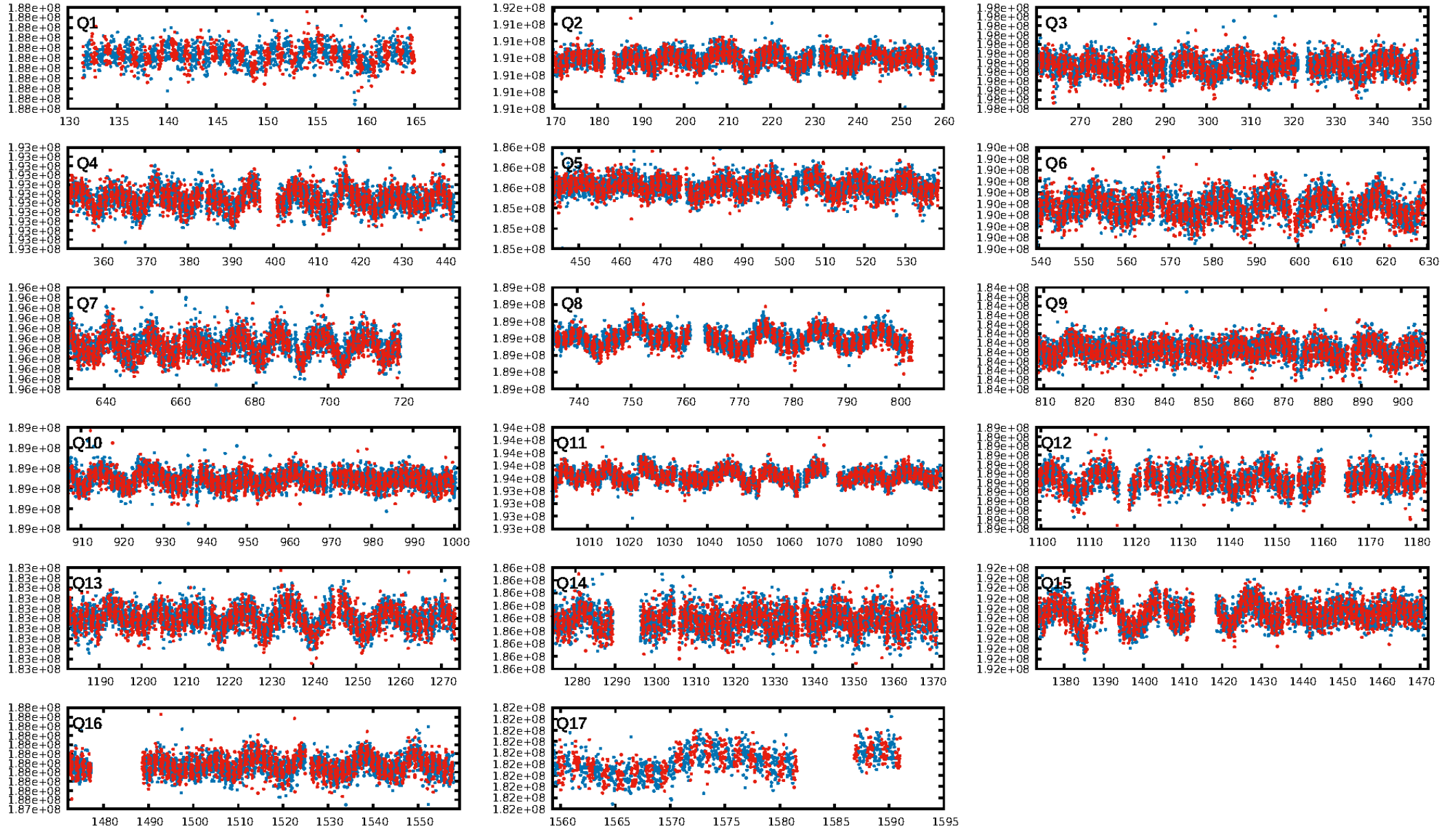
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [227.98σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.70e−46
RollingBand-fgt: 1.00 [960/960]
GhostDiagnostic-chr: 3.362
Centroid-sig: 0.5%
Centroid-so: 0.557 arcsec [1.00σ]
OotOffset-rm: 0.393 arcsec [1.60σ]
KicOffset-rm: 0.360 arcsec [1.28σ]
OotOffset-st: 4/3/3/4 [14]
KicOffset-st: 4/3/3/4 [14]
DiffImageQuality-fgm: 0.93 [13/14]
DiffImageOverlap-fno: 1.00 [17/17]

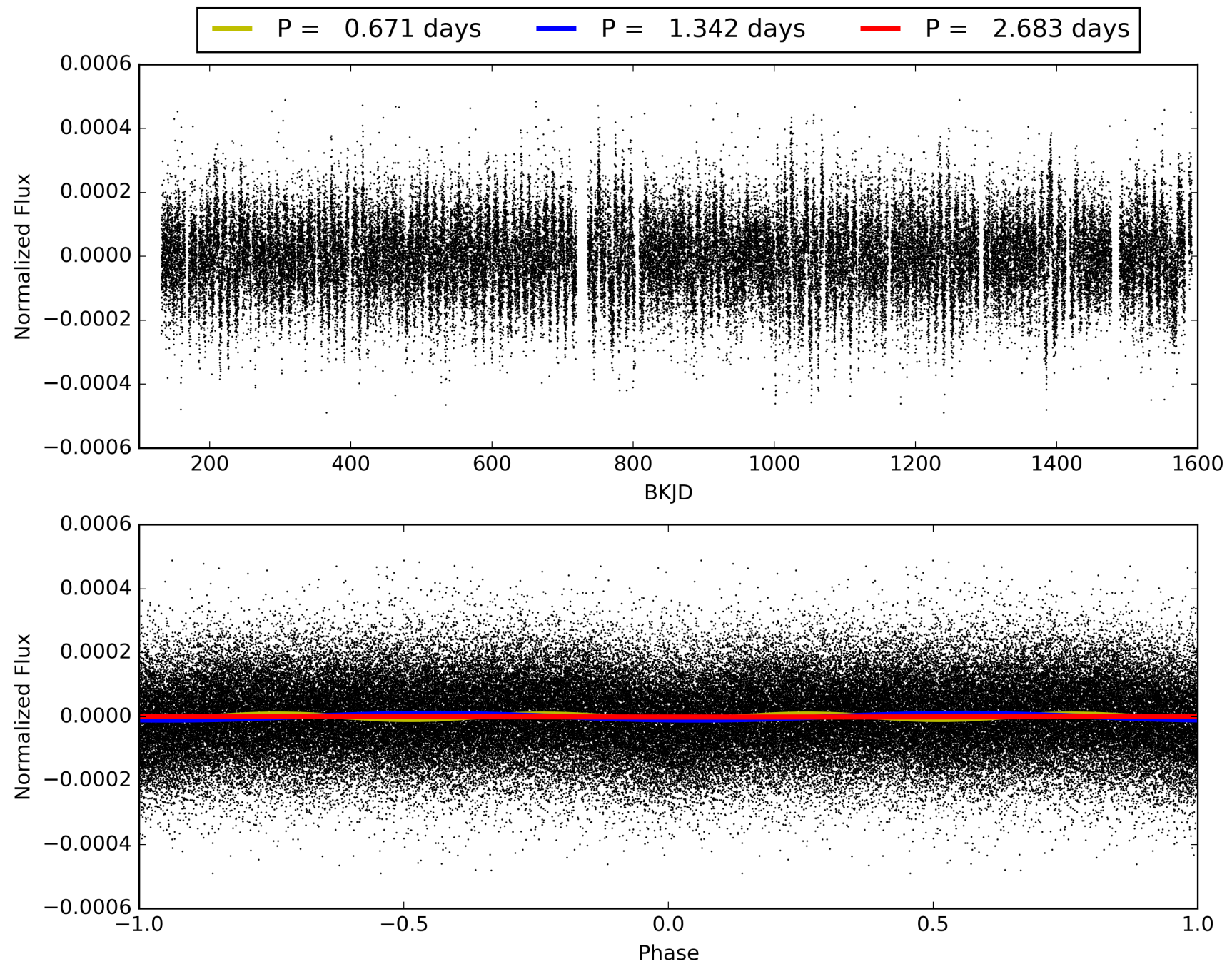
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:15:35 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009654875-01, PDC Light Curves

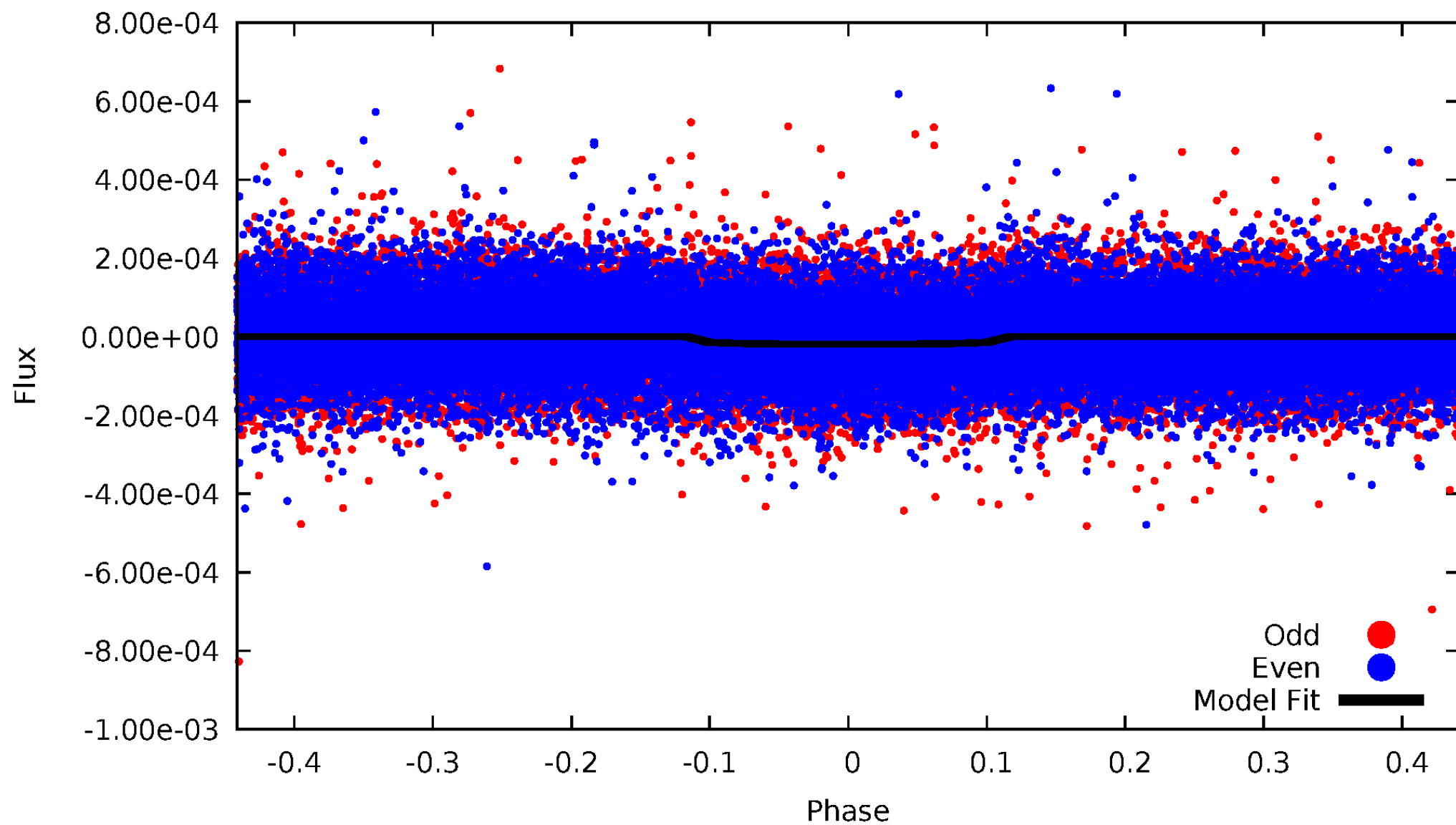


TCE 009654875-01



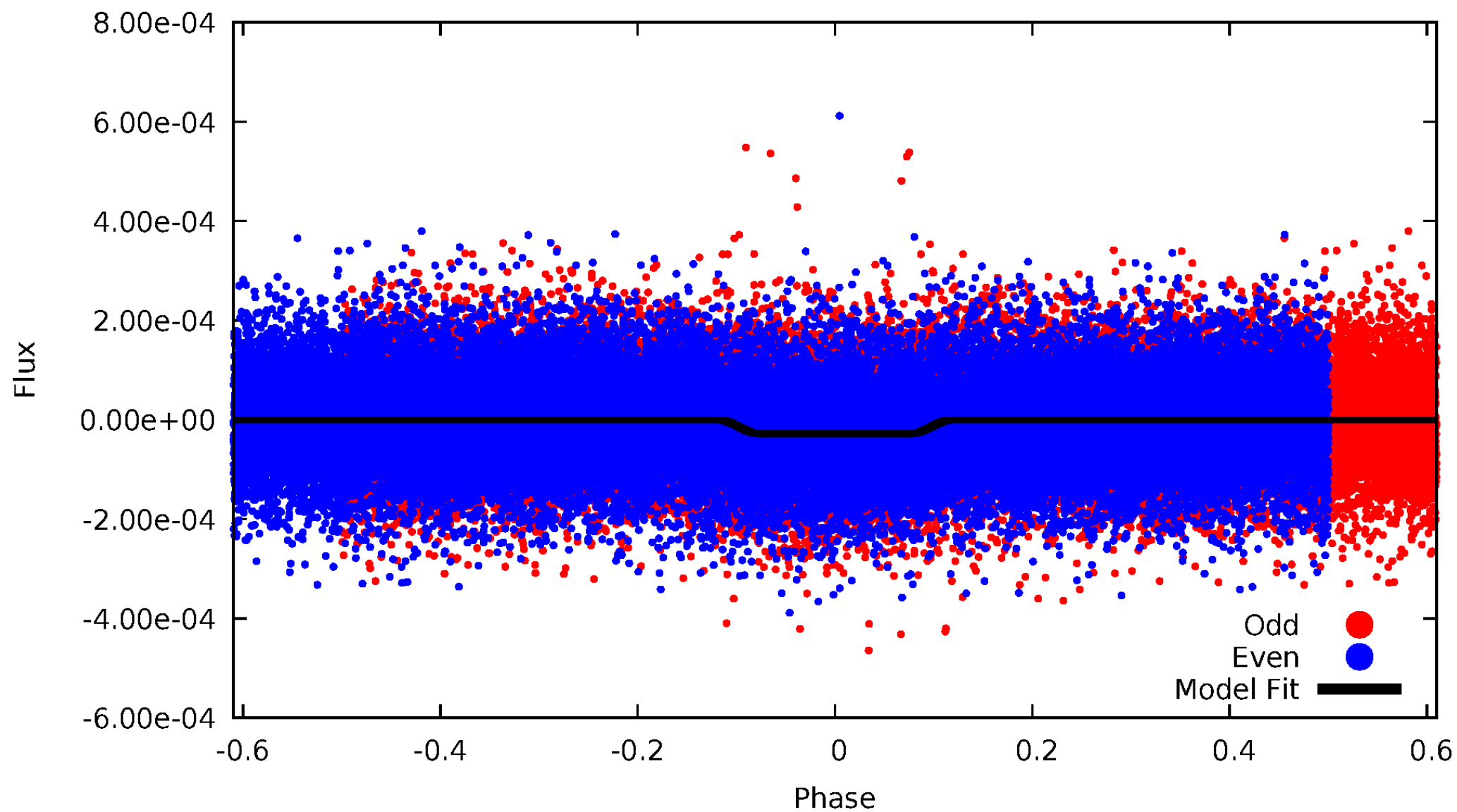
DV Odd/Even

TCE 009654875-01

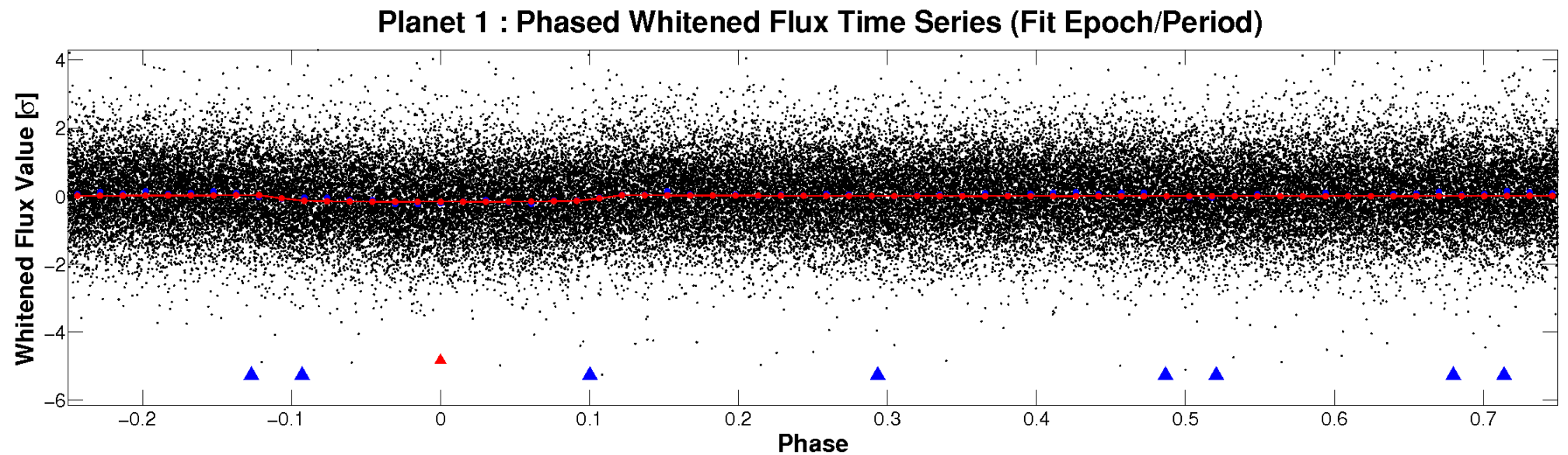
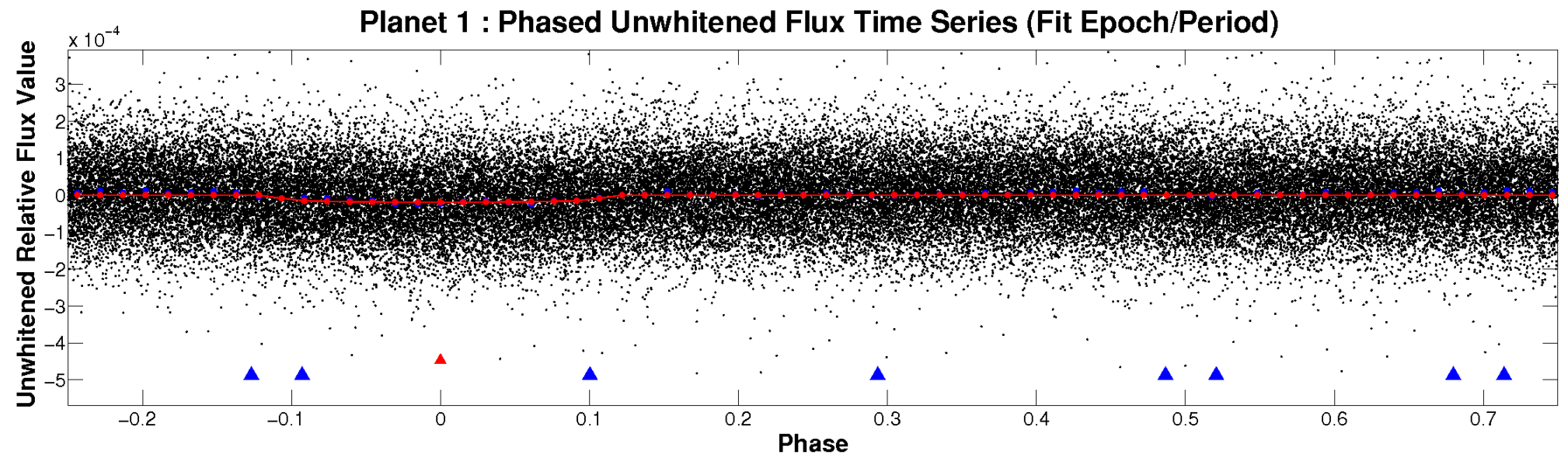


ALT Odd/Even

TCE 009654875-01

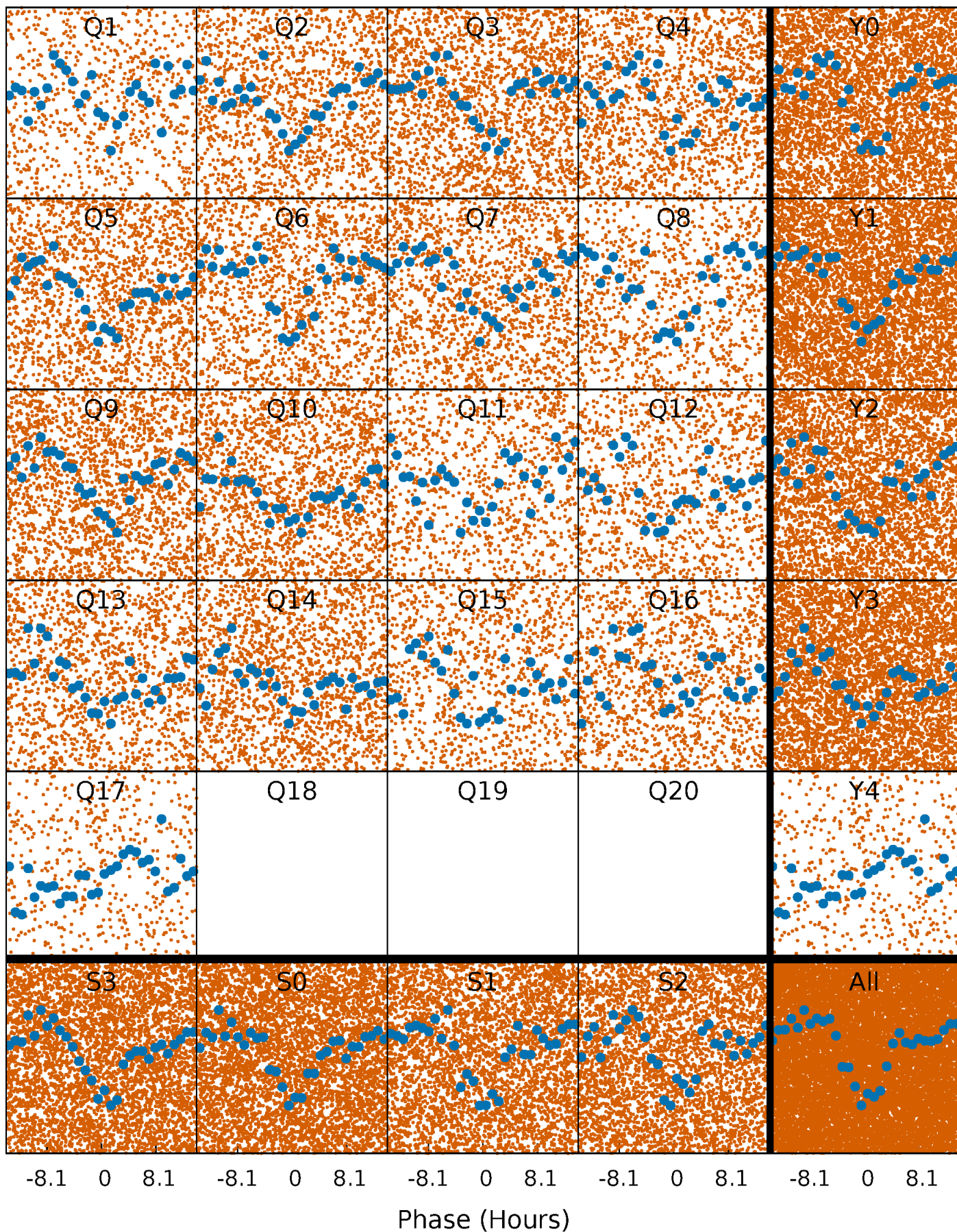


Non-Whitened Vs. Whitened Light Curve



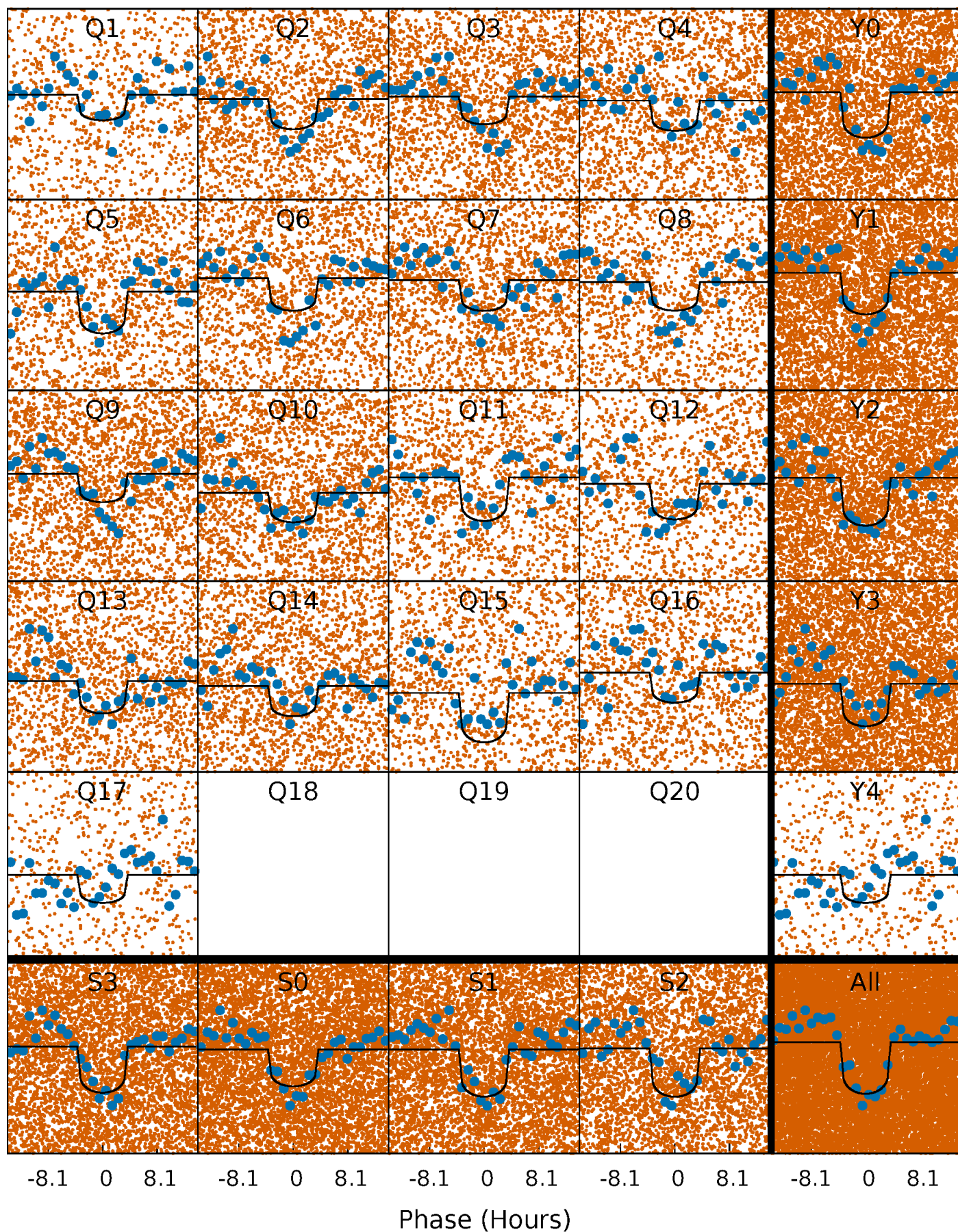
PDC Quarter-Phased Transit Curves

TCE 009654875-01 P= 1.341532 Days $T_0=132.654755$ (BKJD)



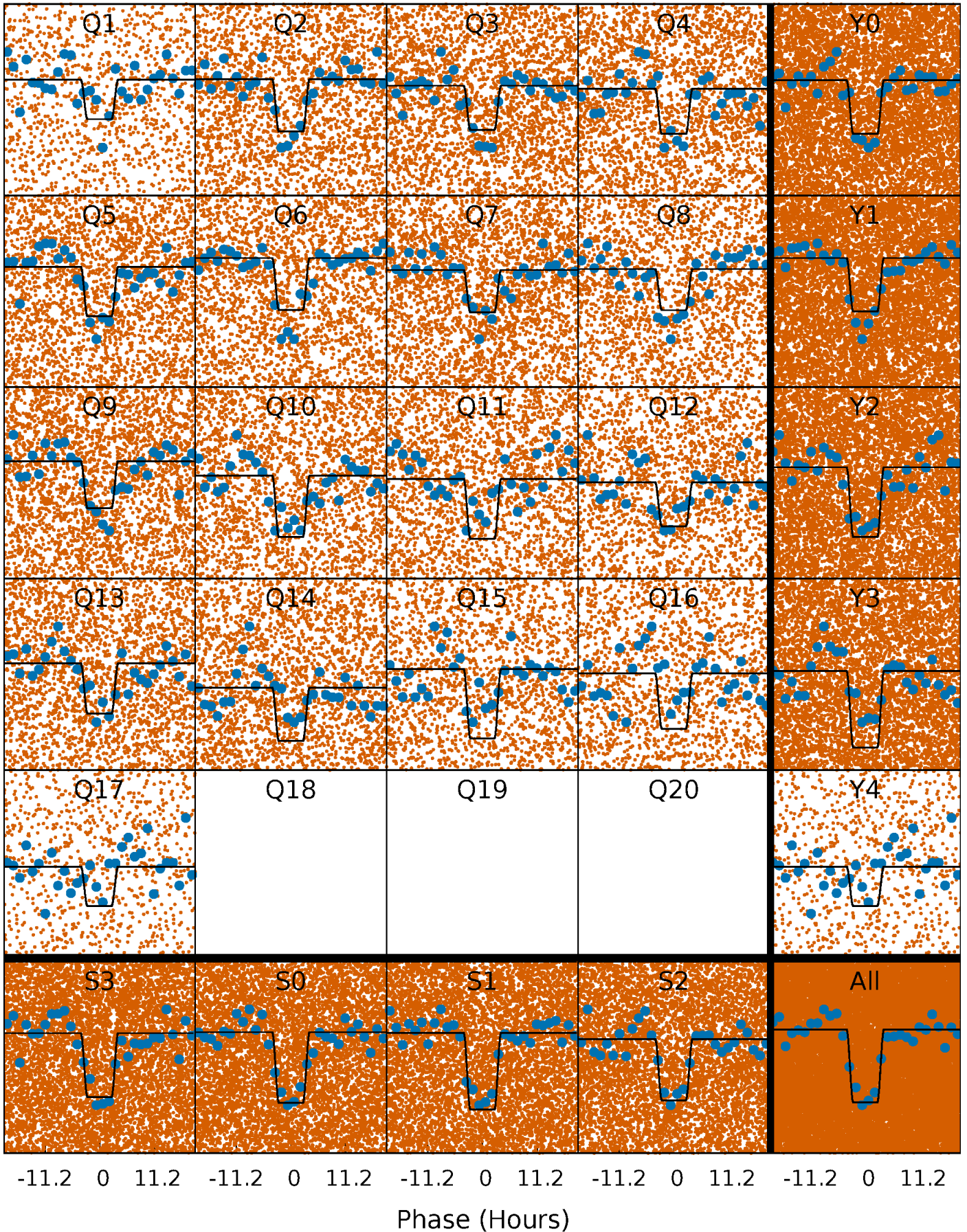
DV Quarter-Phased Transit Curves

TCE 009654875-01 P= 1.341532 Days $T_0=132.654755$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

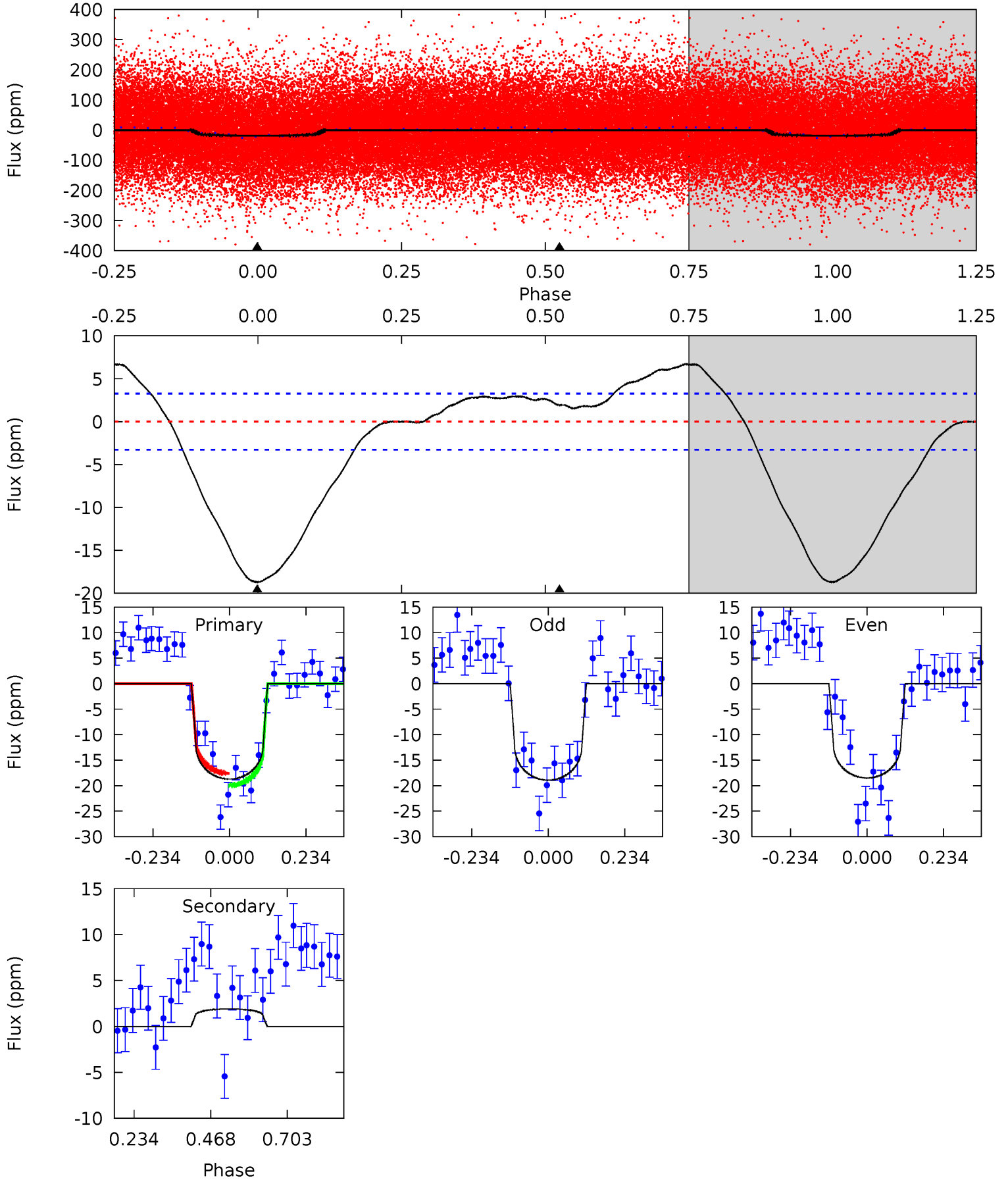
TCE 009654875-01 P= 1.341457 Days $T_0=132.700254$ (BKJD)



DV Model-Shift Uniqueness Test

009654875-01, P = 1.341532 Days, E = 131.313223 Days

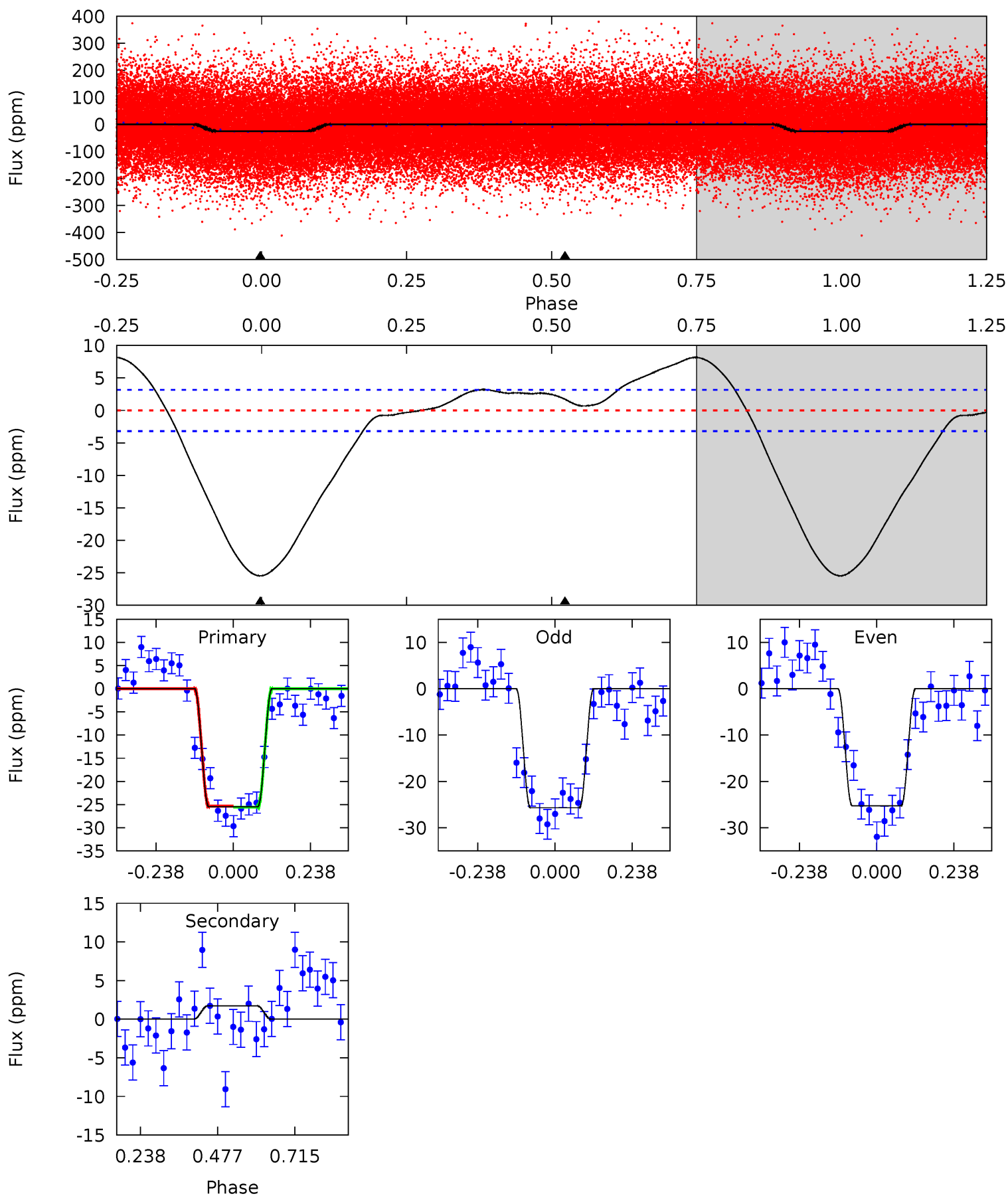
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	-2.56	0	0	4.38	1.19	3.77	25.1	25.1	-2.56	-2.56	0.29	0.98	0.26	1.56



Alt Model-Shift Uniqueness Test

009654875-01, P = 1.341457 Days, E = 131.358797 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.0	-2.38	0	0	4.38	1.18	4.86	35.0	35.0	-2.38	-2.38	0.29	1.03	0.24	0.17



Stellar Parameters For KIC 009654875

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7495^{+235}_{-314}	$3.926^{+0.266}_{-0.123}$	$-0.100^{+0.200}_{-0.350}$	$2.389^{+0.520}_{-0.845}$	$1.754^{+0.195}_{-0.391}$	$0.181^{+0.317}_{-0.077}$
	+3%/-4%	+7%/-3%	+200%/-350%	+22%/-35%	+11%/-22%	+175%/-42%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009654875-01 / KOI 2272.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	2 ± 1	$1.03^{+0.34}_{-0.29}$	4144^{+282}_{-371}	-4699^{+388}_{-617}	$-0.761^{+0.377}_{-0.856}$
Alt.	2 ± 1	$1.34^{+0.32}_{-0.33}$	4162^{+290}_{-347}	-4383^{+298}_{-354}	$-0.416^{+0.211}_{-0.397}$

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

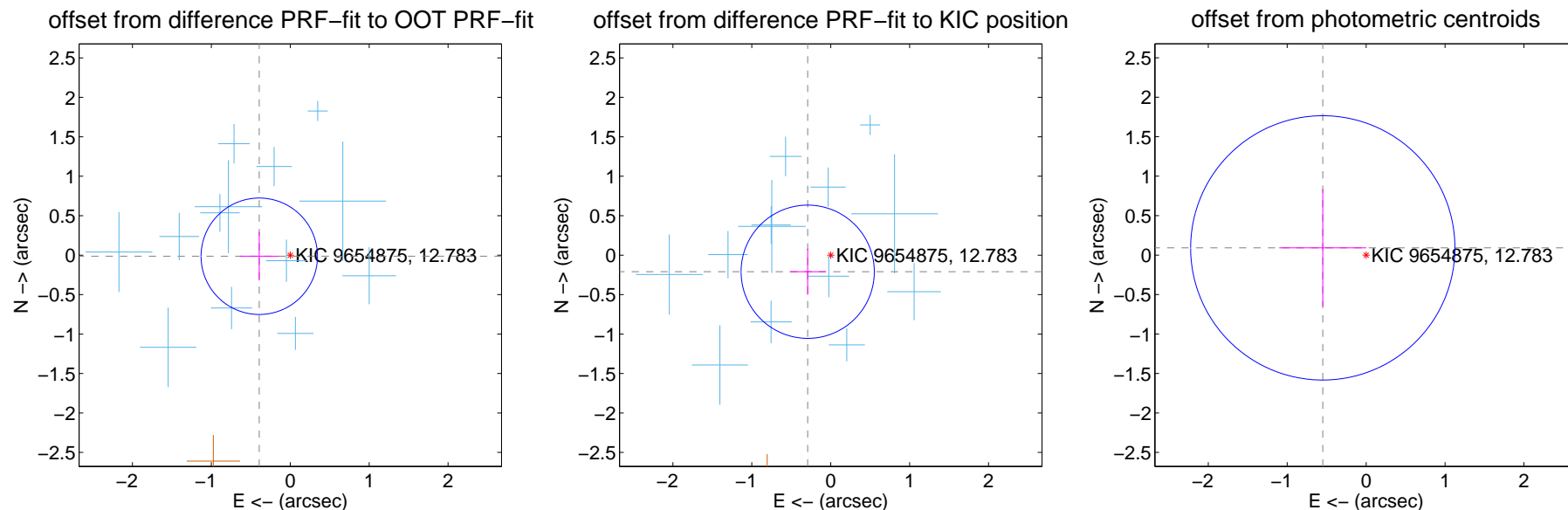
DV Centroid Data

Supplemental centroid analysis for 009654875-01. Kepler magnitude: 12.78. Transit SNR 18.00

There are 13 quarters with good PRF difference image offsets

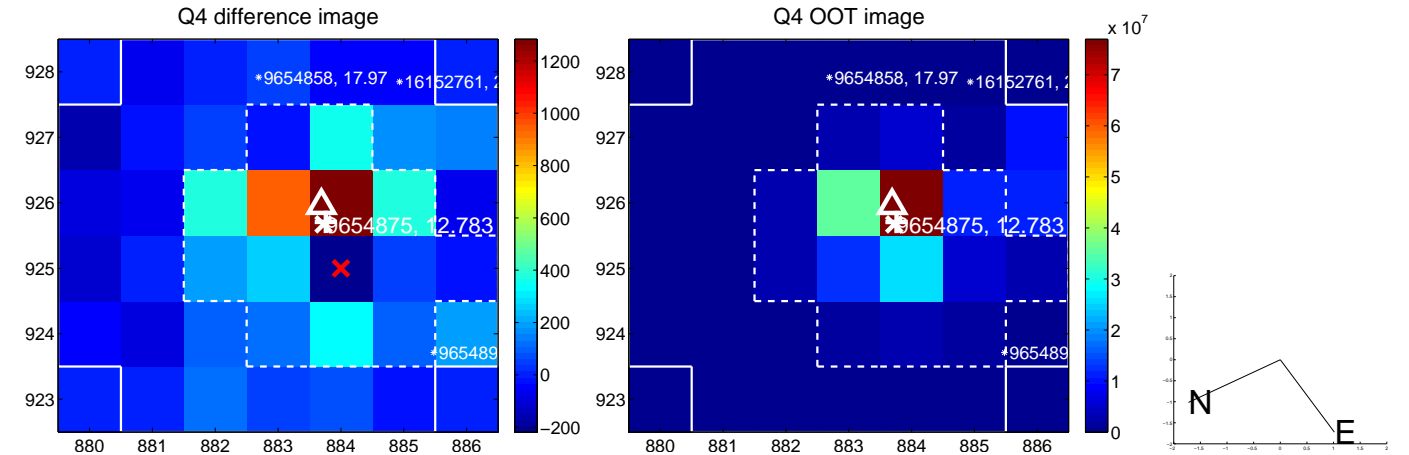
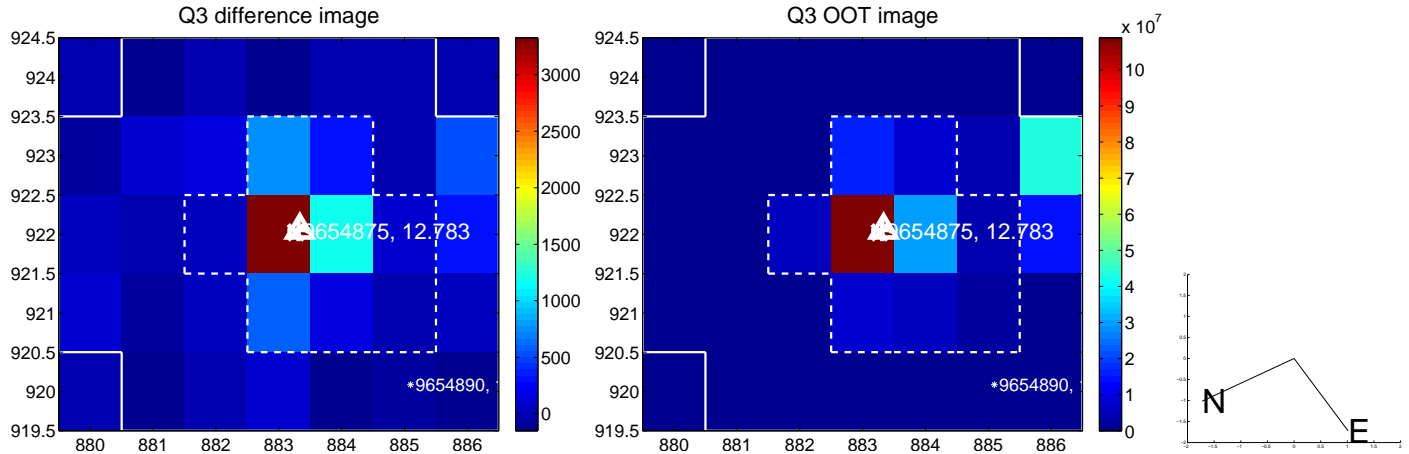
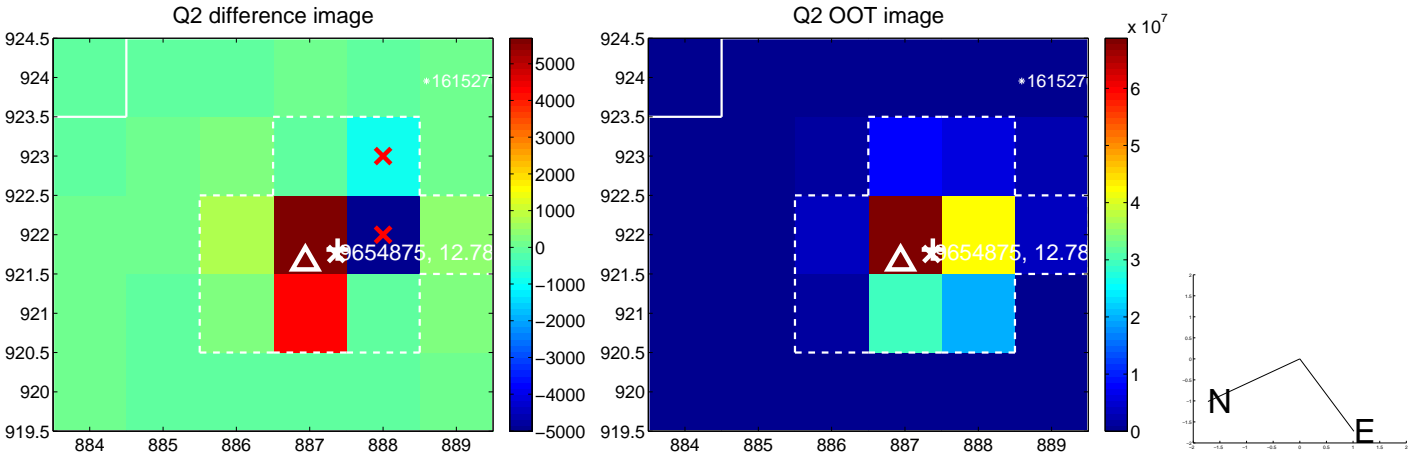
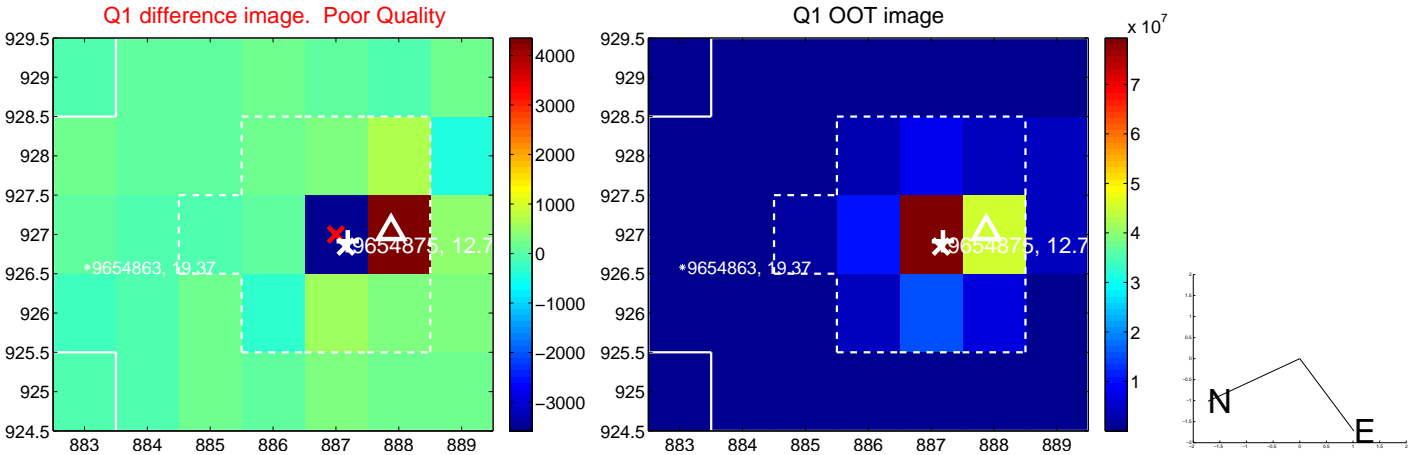
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.393 ± 0.246	1.60	0.393 ± 0.243	-0.014 ± 0.308
PRF-fit source offset from KIC position	0.360 ± 0.281	1.28	0.292 ± 0.229	-0.210 ± 0.294
photometric centroid source offset	0.56 ± 0.56	1.00	0.55 ± 0.55	0.09 ± 0.74

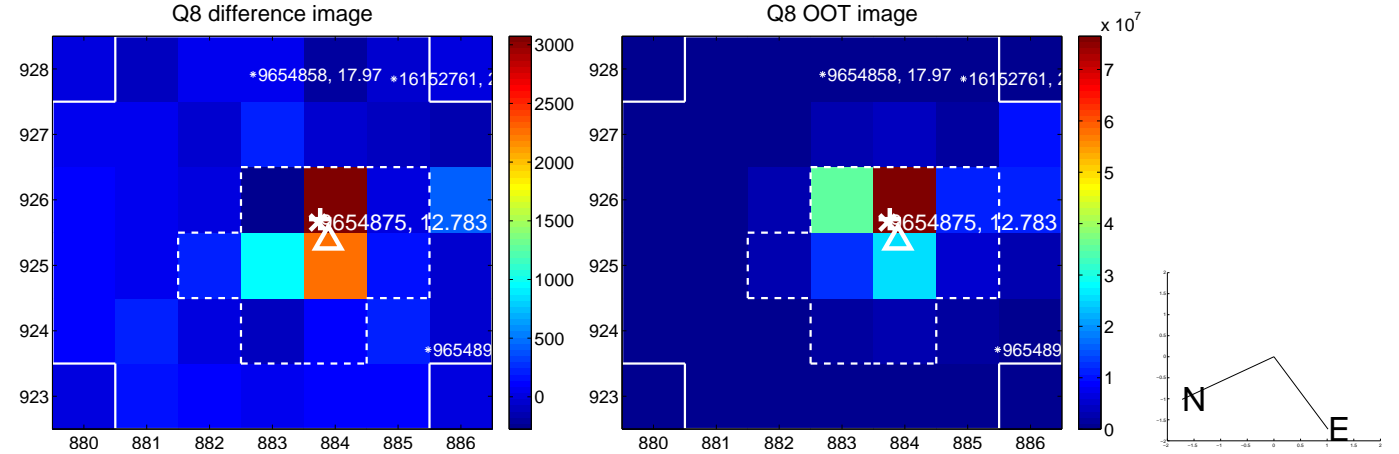
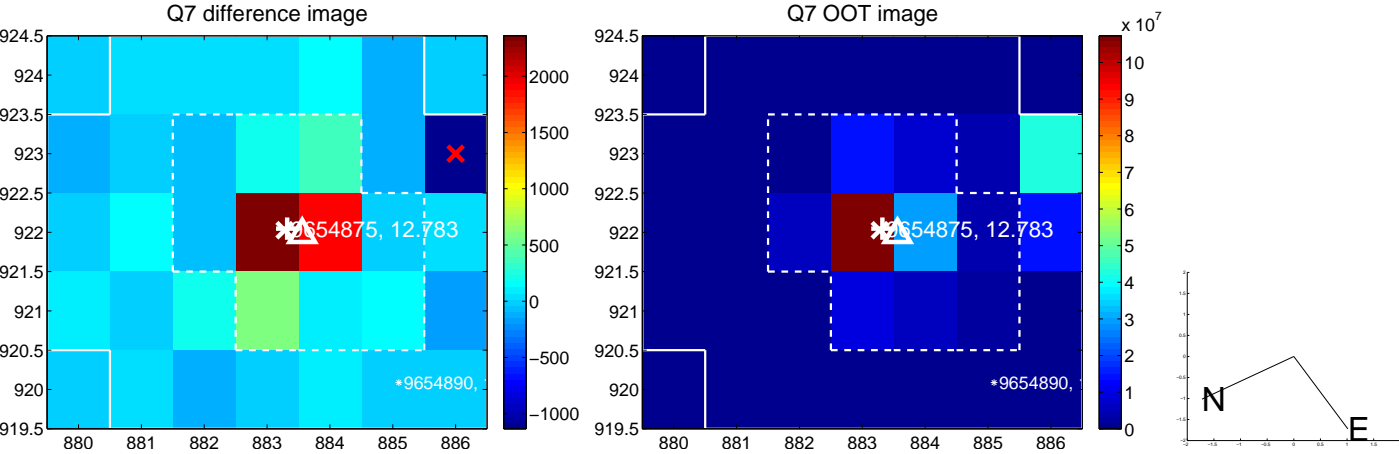
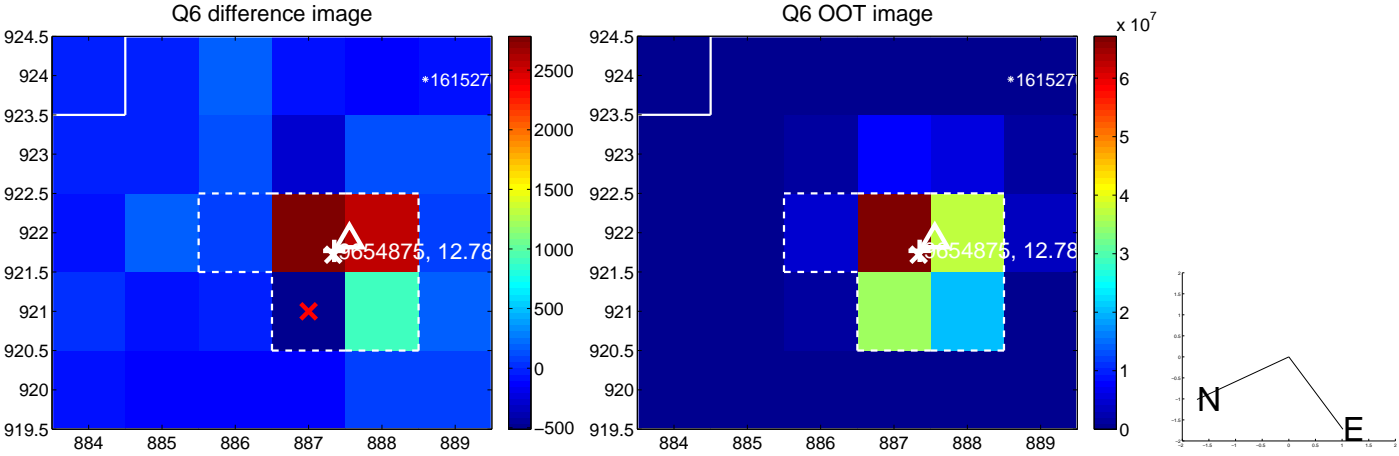
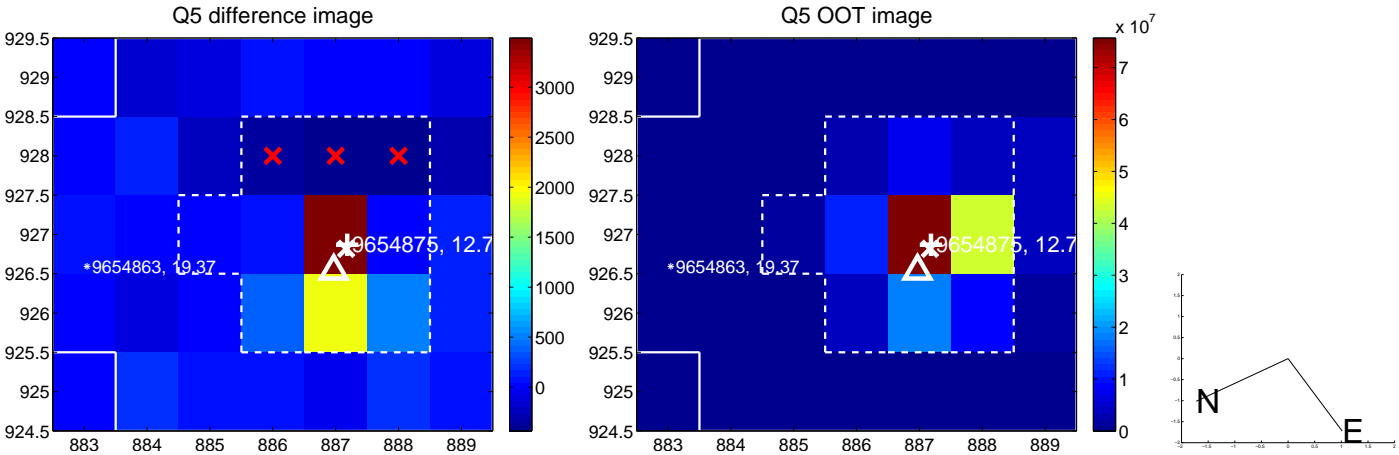


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

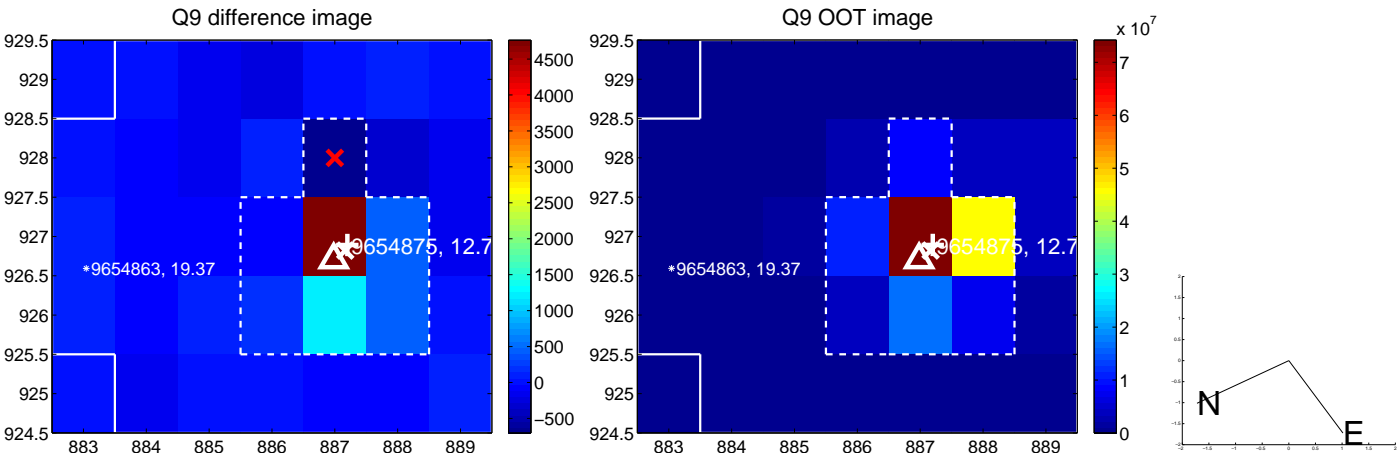
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



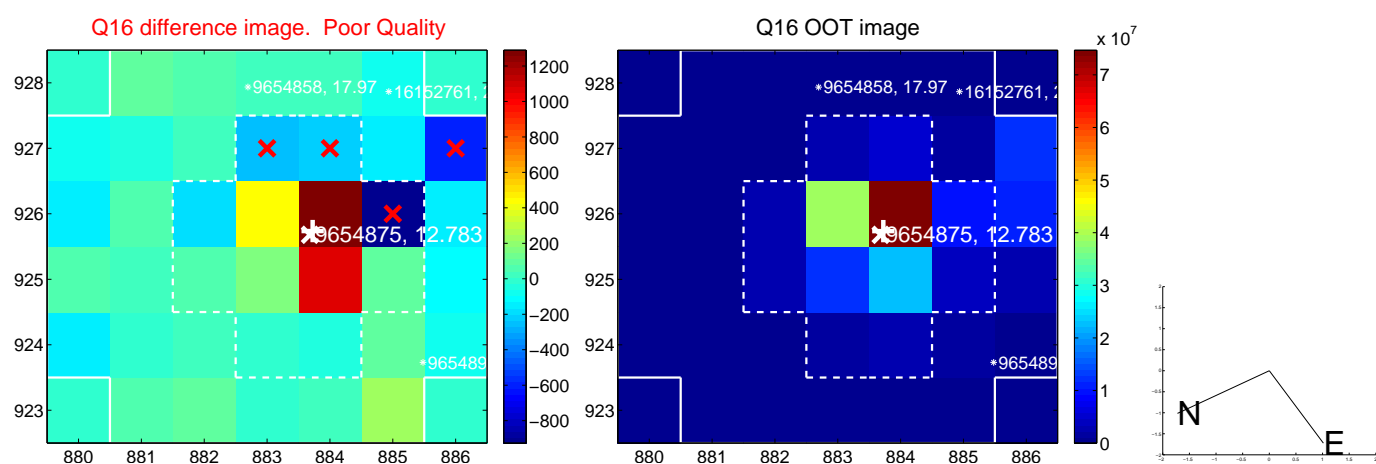
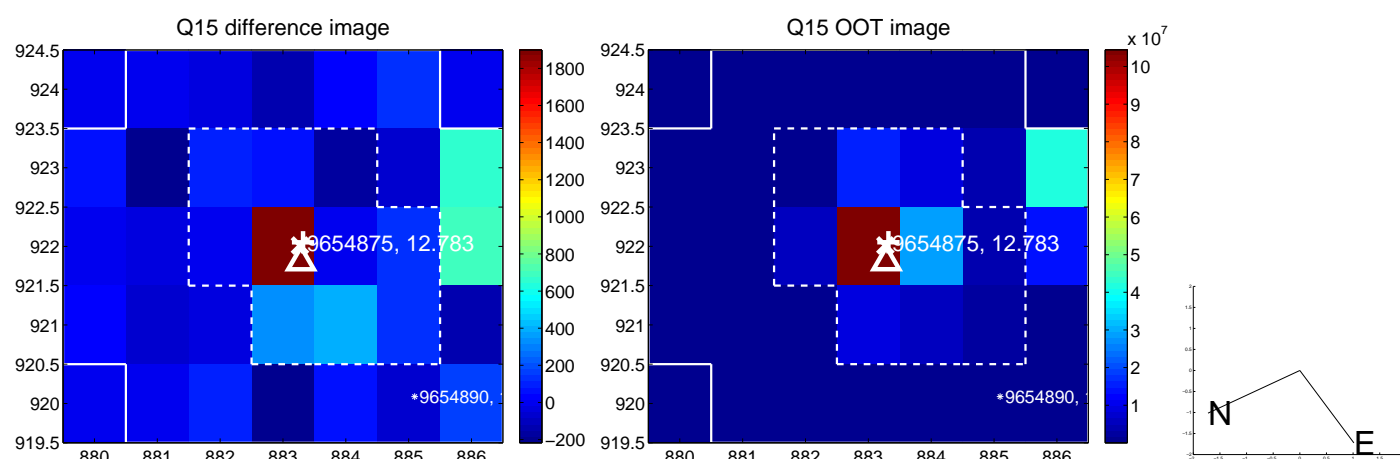
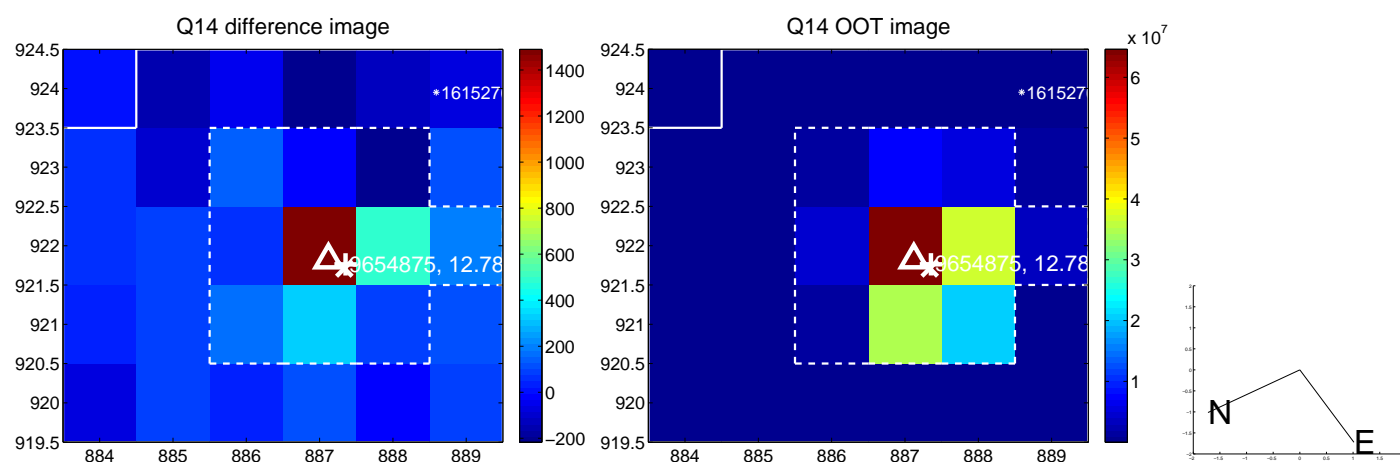
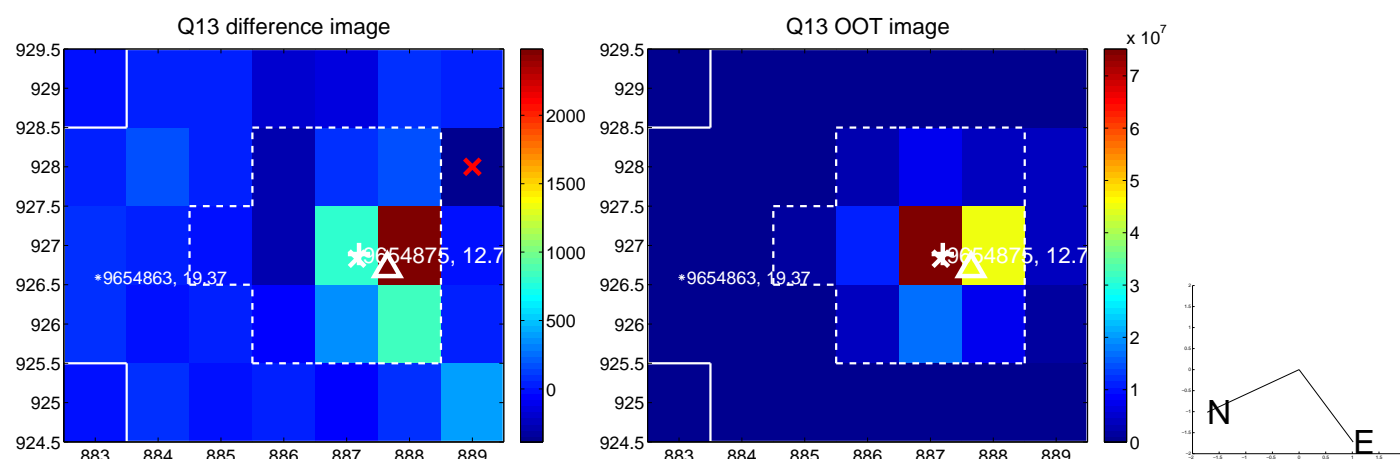
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



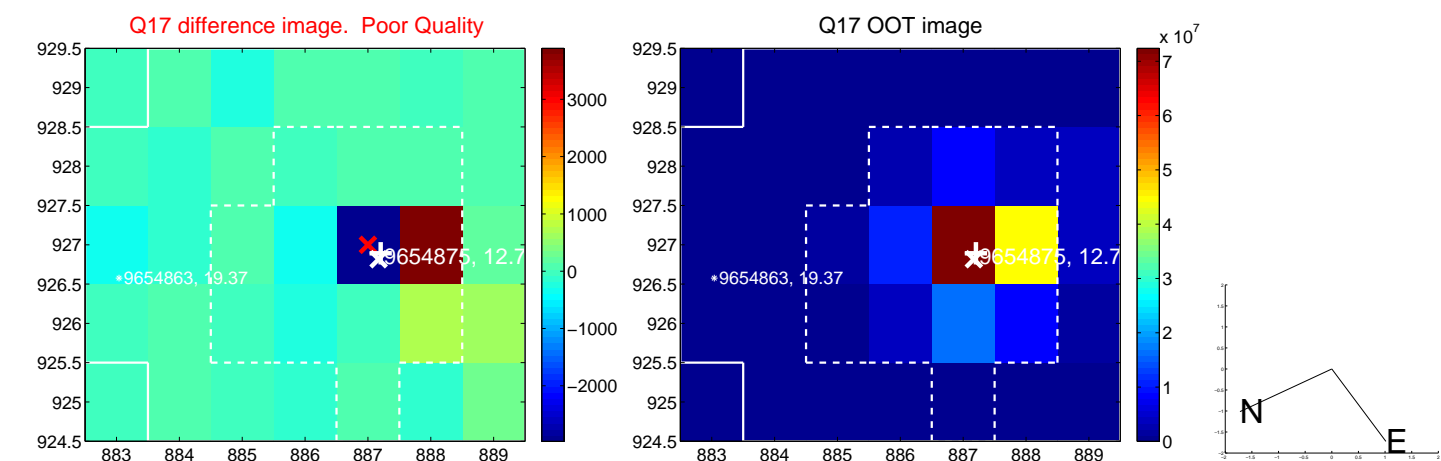
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



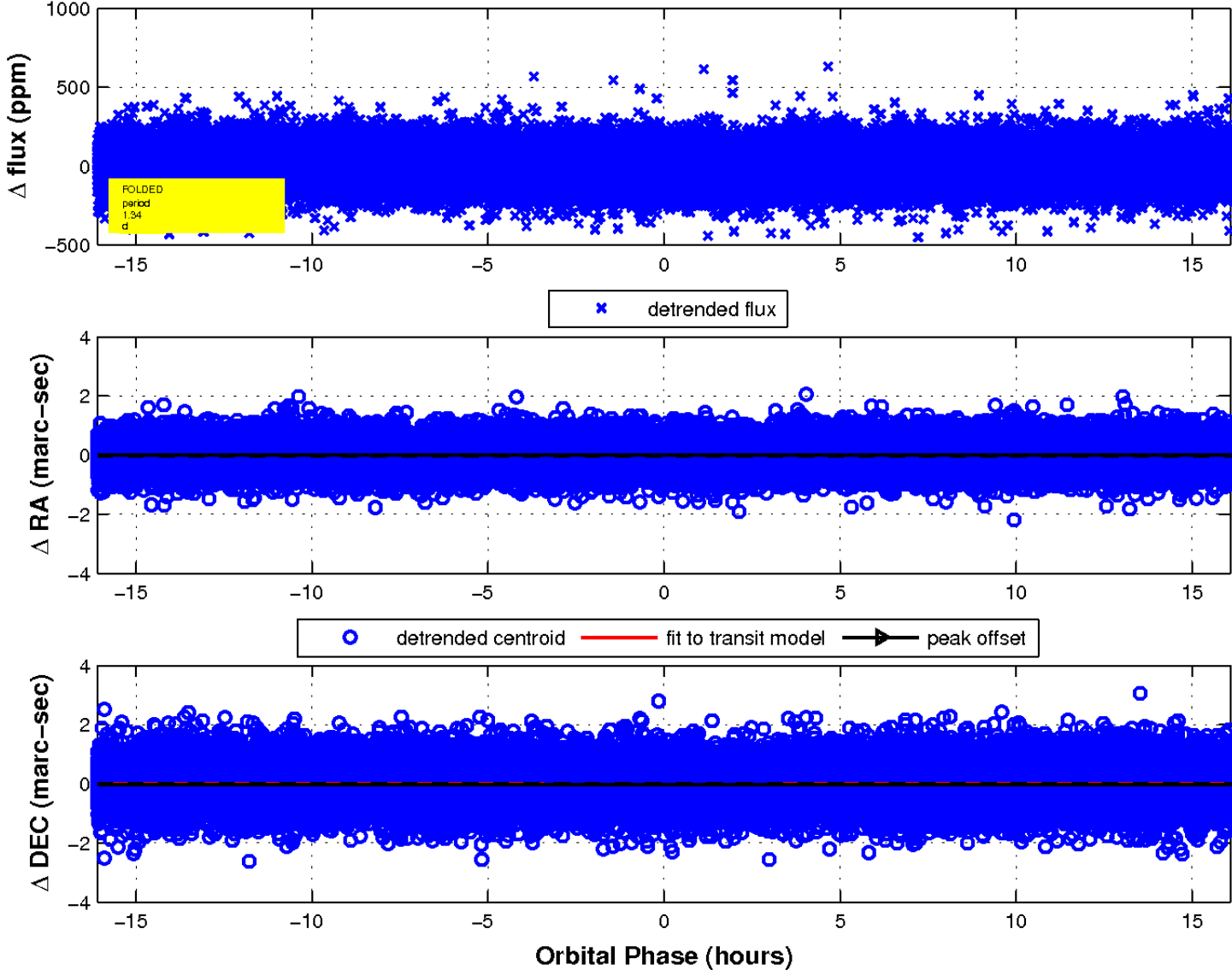
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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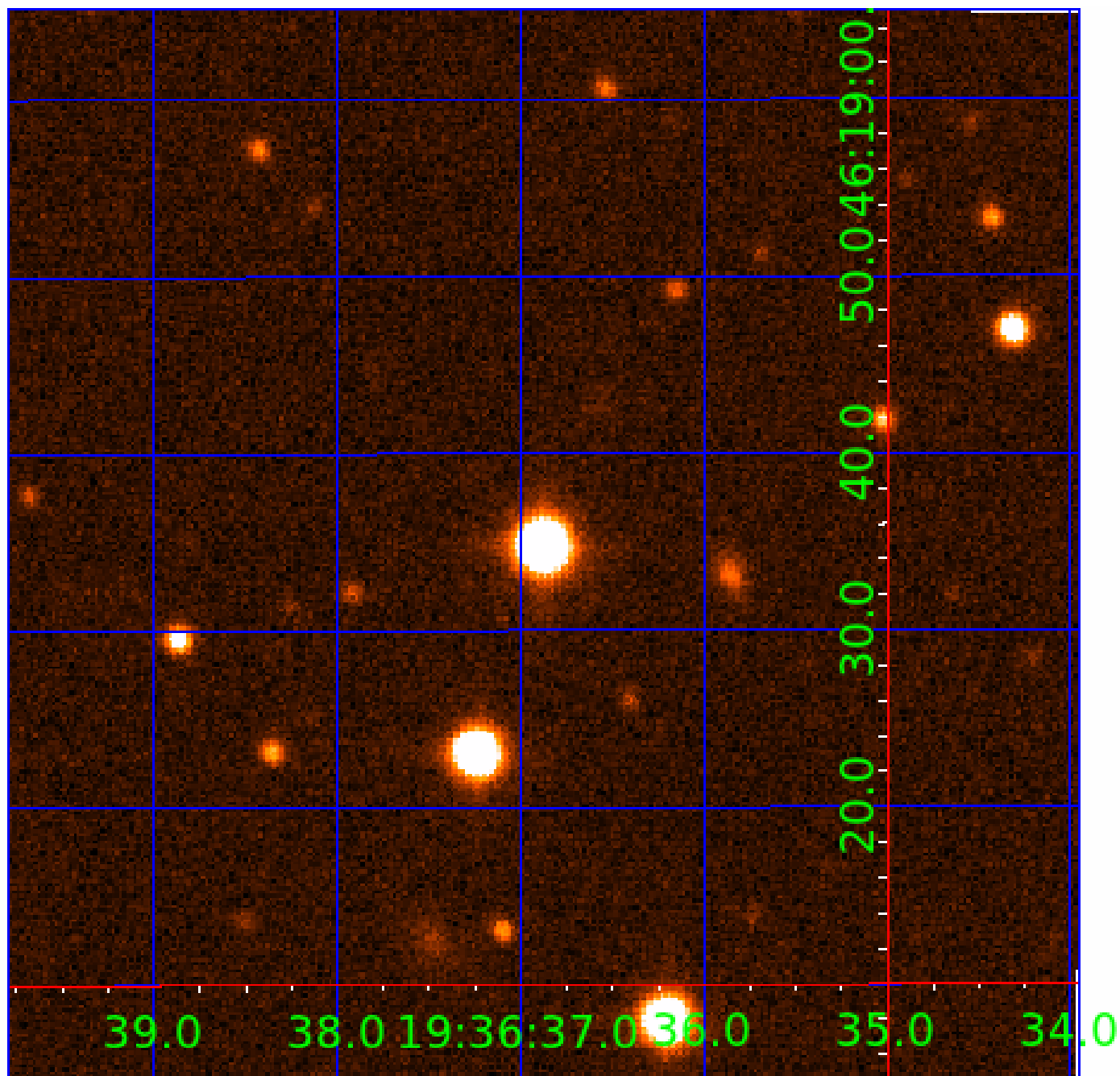


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009654875

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
009654875-01	OBS	2272.01	1.341532	132.654755	19.2	7.102	16.7	18.0	2.39	7495	1.09	19557.96
009654875-02	OBS	No	190.756774	251.408199	80.3	18.633	17.9	5.6	2.39	7495	2.34	26.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009654875-01	OBS	FP	0.04	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
009654875-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

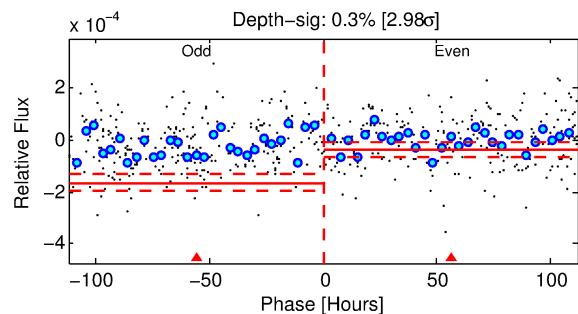
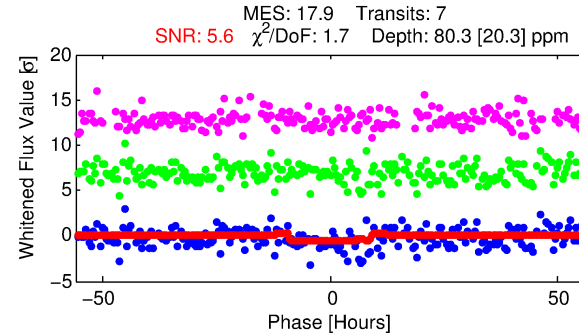
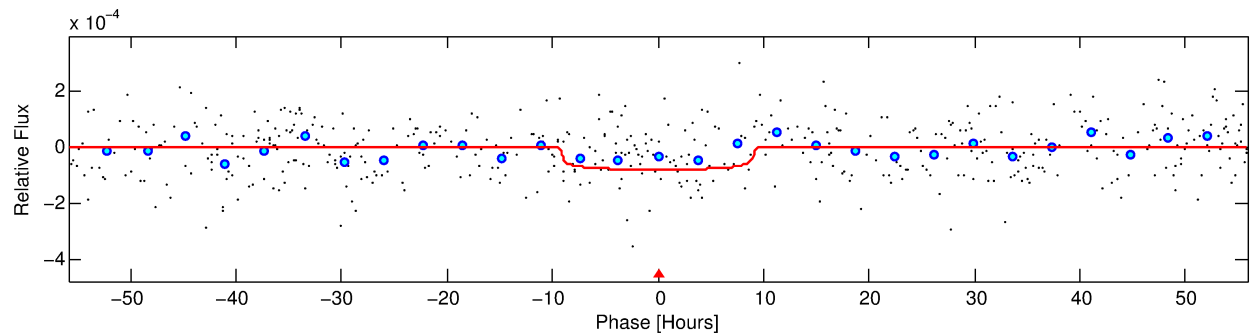
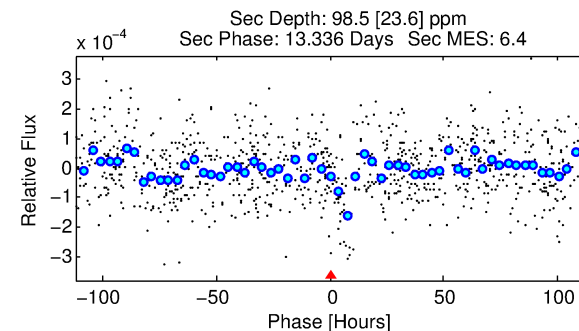
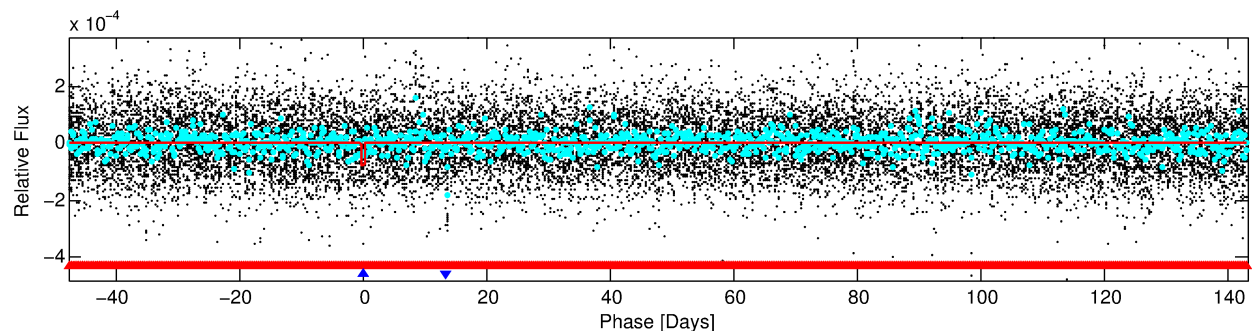
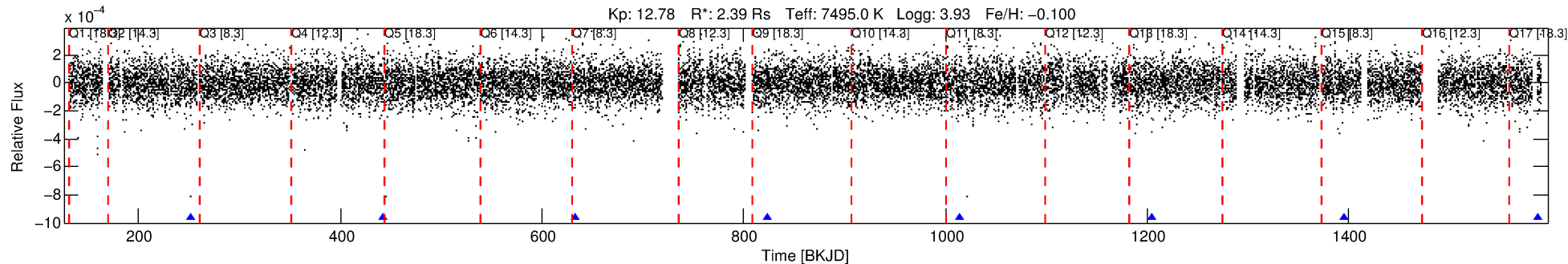
Ephemeris Match Information For 009654875-02

No Significant Match Found

DV One-Page Summary

KIC: 9654875 Candidate: 2 of 2 Period: 190.757 d
KOI: K02272 Corr: No Ephemeris Match

Kp: 12.78 R*: 2.39 Rs Teff: 7495.0 K Logg: 3.93 Fe/H: -0.100



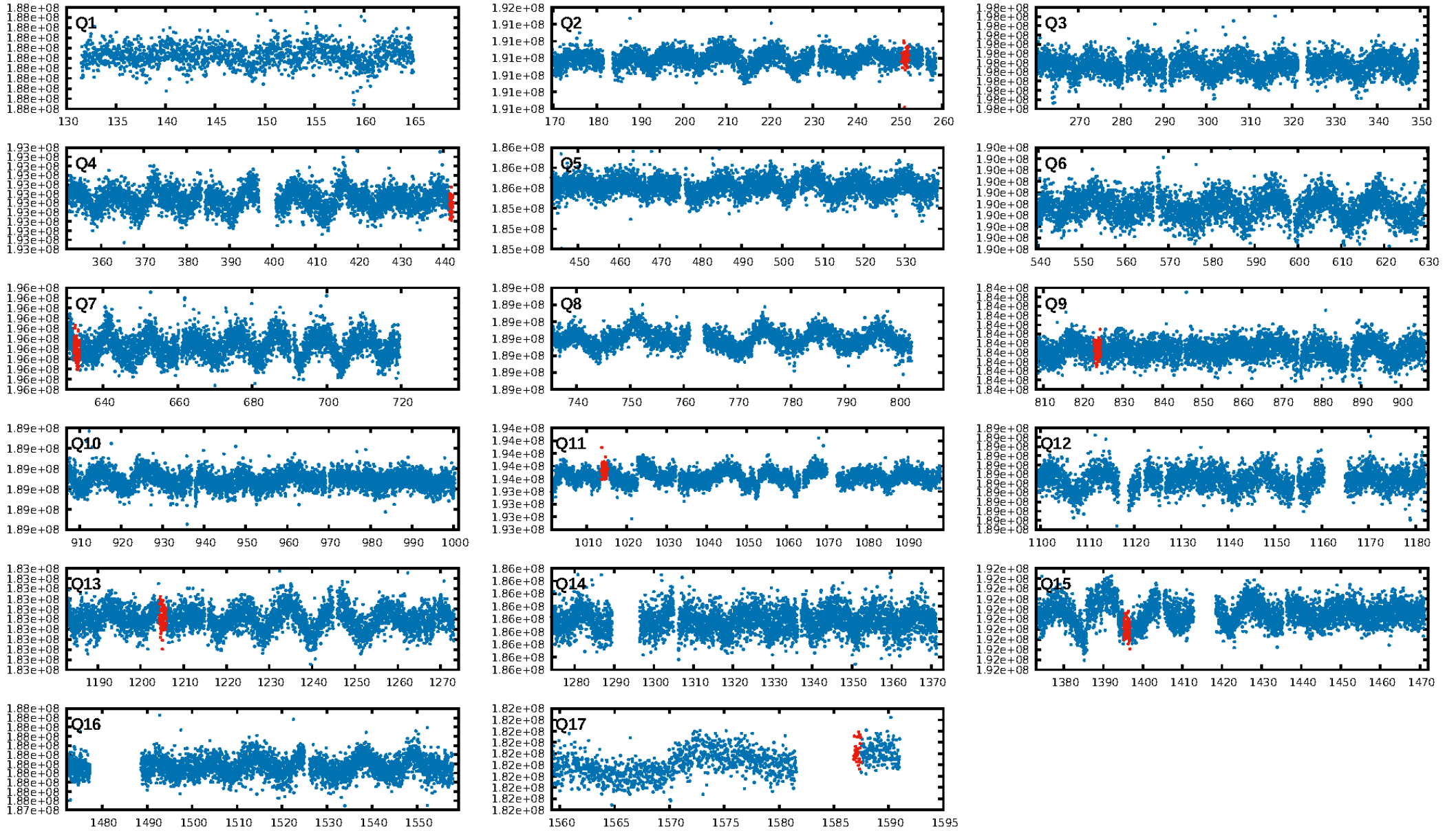
DV Fit Results:

Period = 190.75677 [0.01222] d
Epoch = 251.4082 [0.0470] BKJD
Rp/R* = 0.0090 [0.0035]
a/R* = 50.63 [116.33]
b = 0.77 [1.20]
Seff = 26.35 [13.19]
Teq = 578 [72] K
Rp = 2.34 [1.23] Re
a = 0.7825 [0.2441] AU
Ag = 6070.05 [5736.96] [1.06σ]
Teffp = 7884 [1648] K [4.43σ]

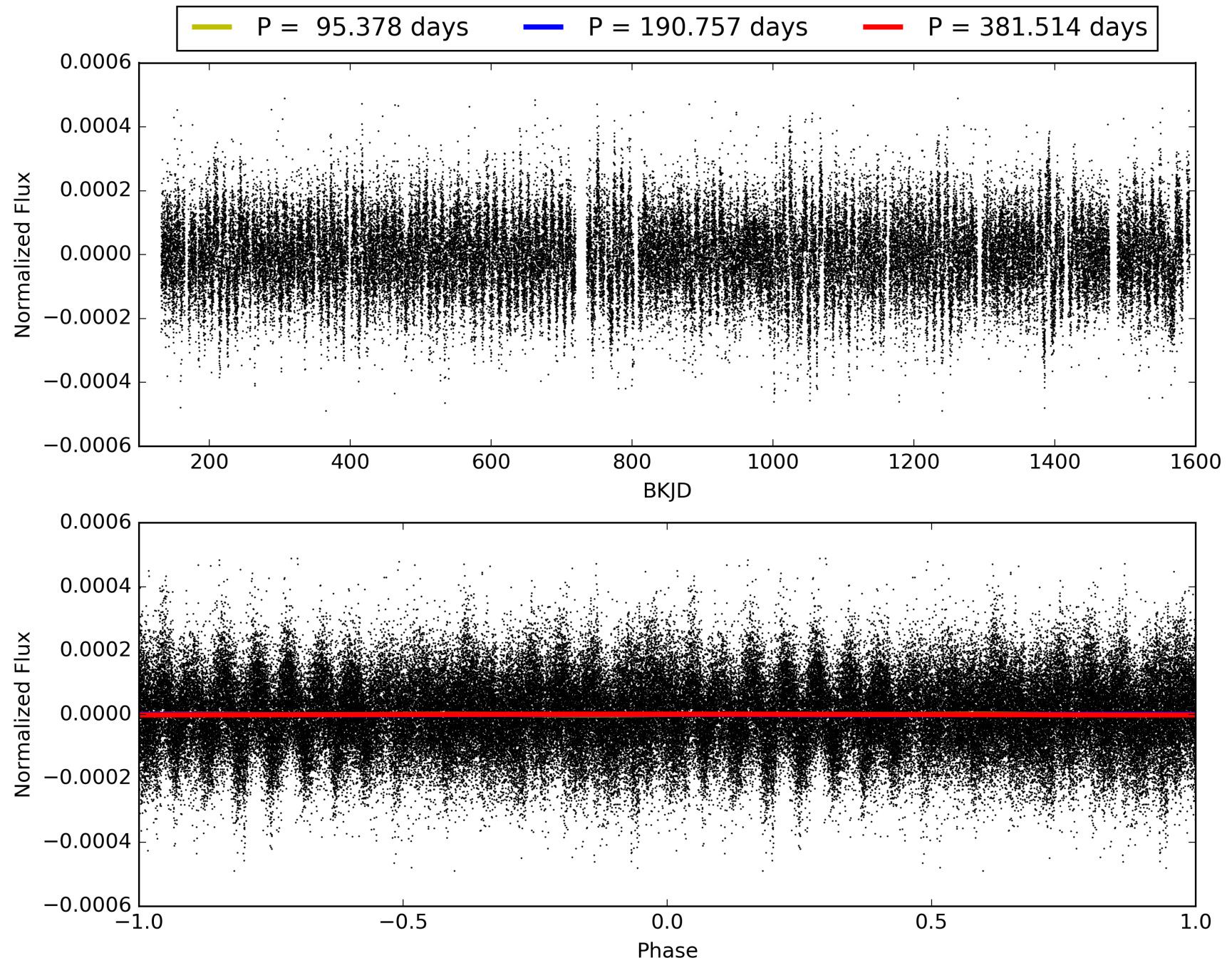
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [227.98σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.66e-31
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -0.008323
Centroid-sig: 14.6%
Centroid-so: 2.693 arcsec [1.61σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 0.00 [0/3]

TCE 009654875-02, PDC Light Curves

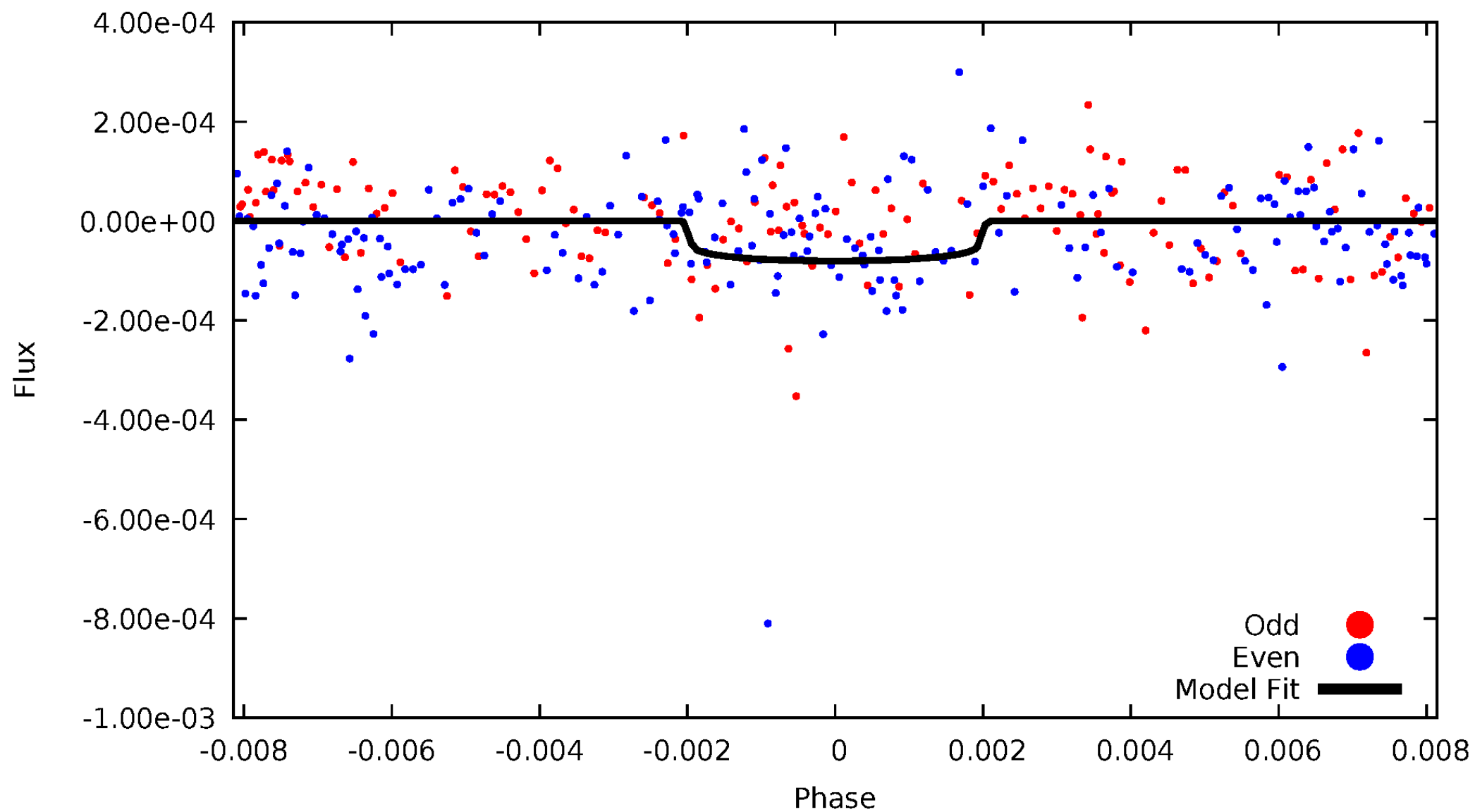


TCE 009654875-02



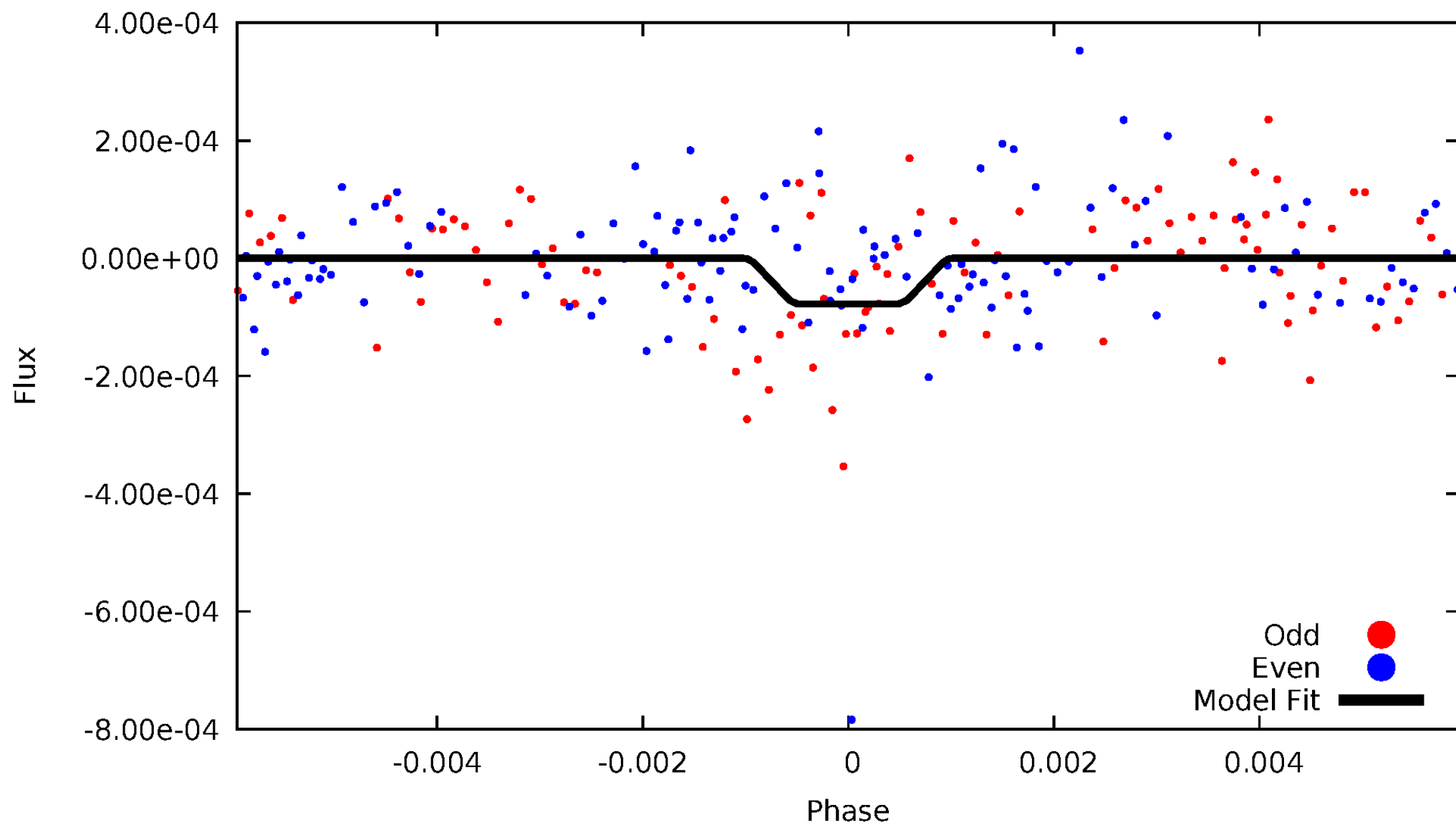
DV Odd/Even

TCE 009654875-02



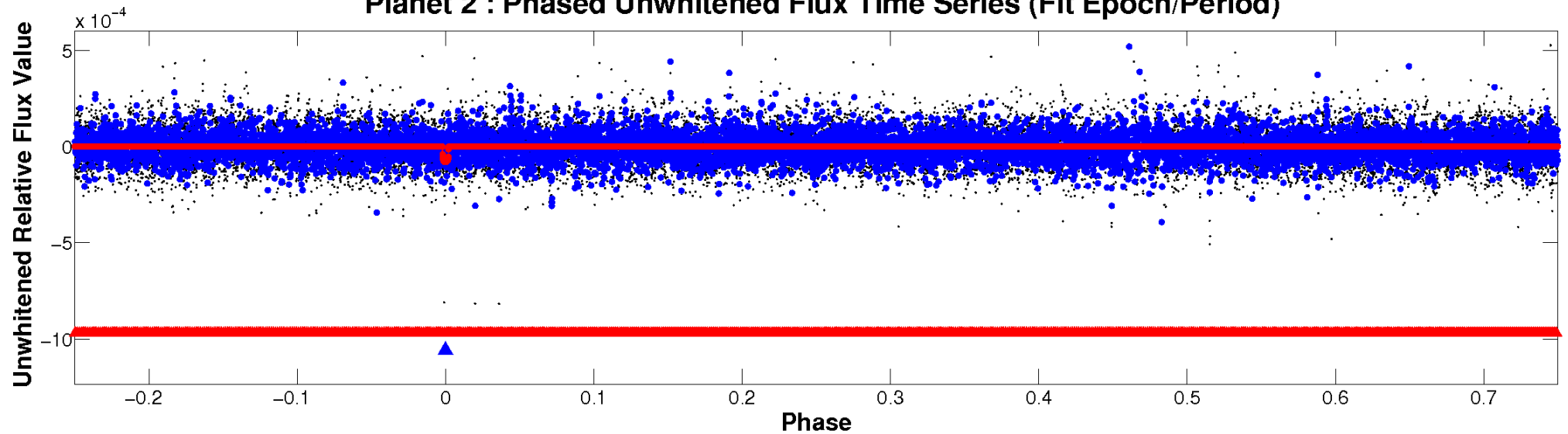
ALT Odd/Even

TCE 009654875-02

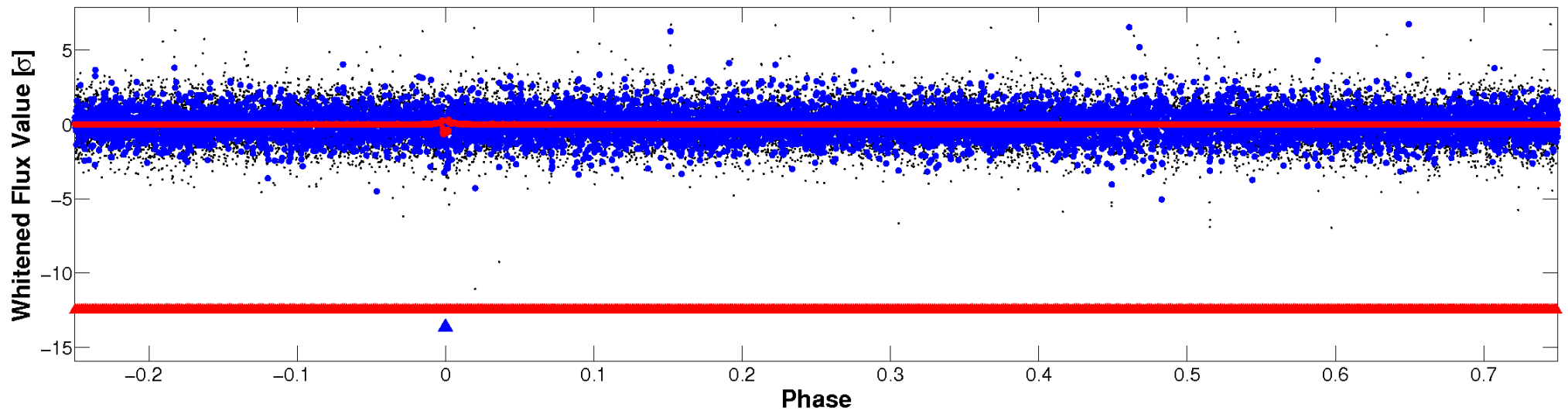


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



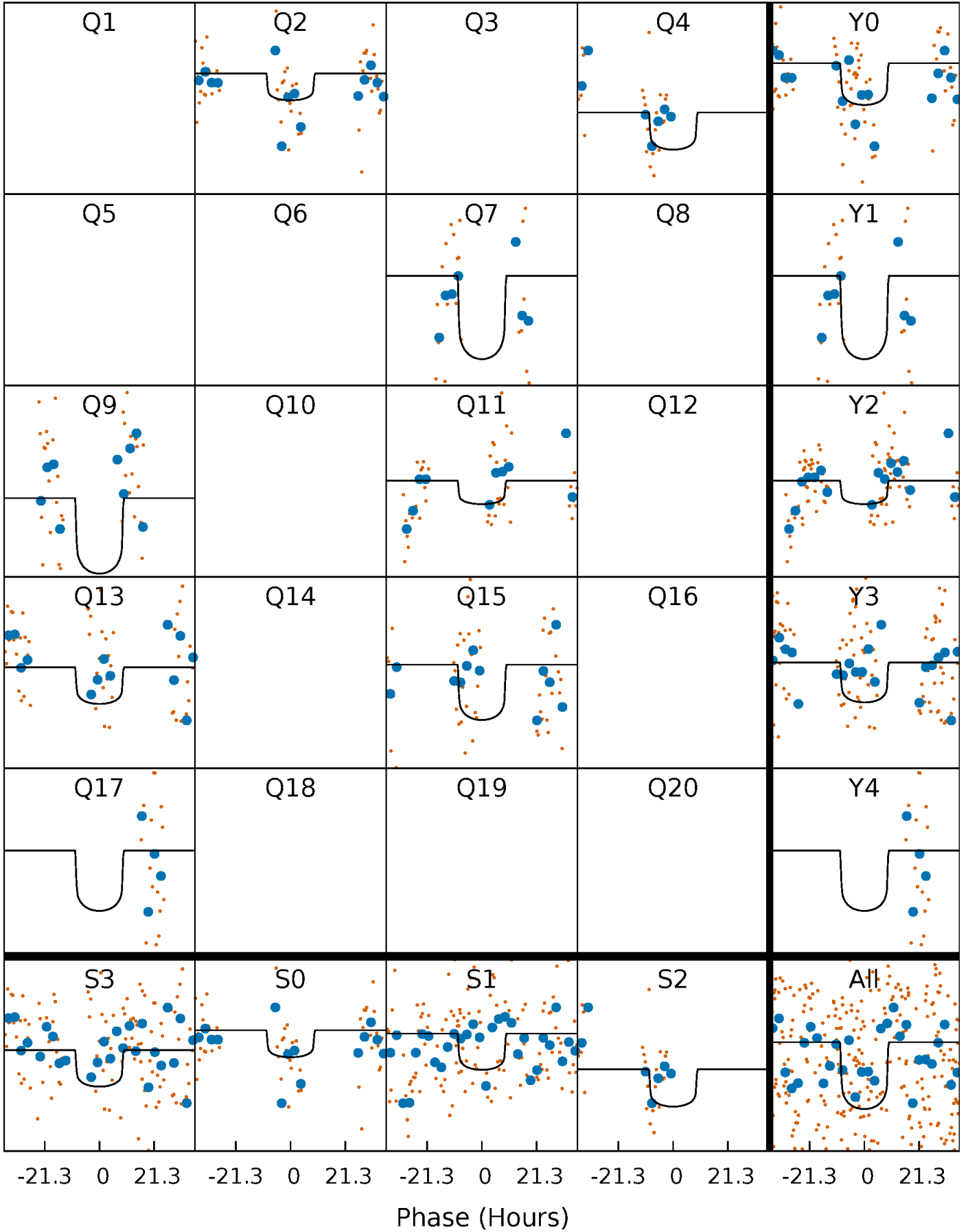
PDC Quarter-Phased Transit Curves

TCE 009654875-02 $P=190.756774$ Days $T_0=251.408199$ (BKJD)



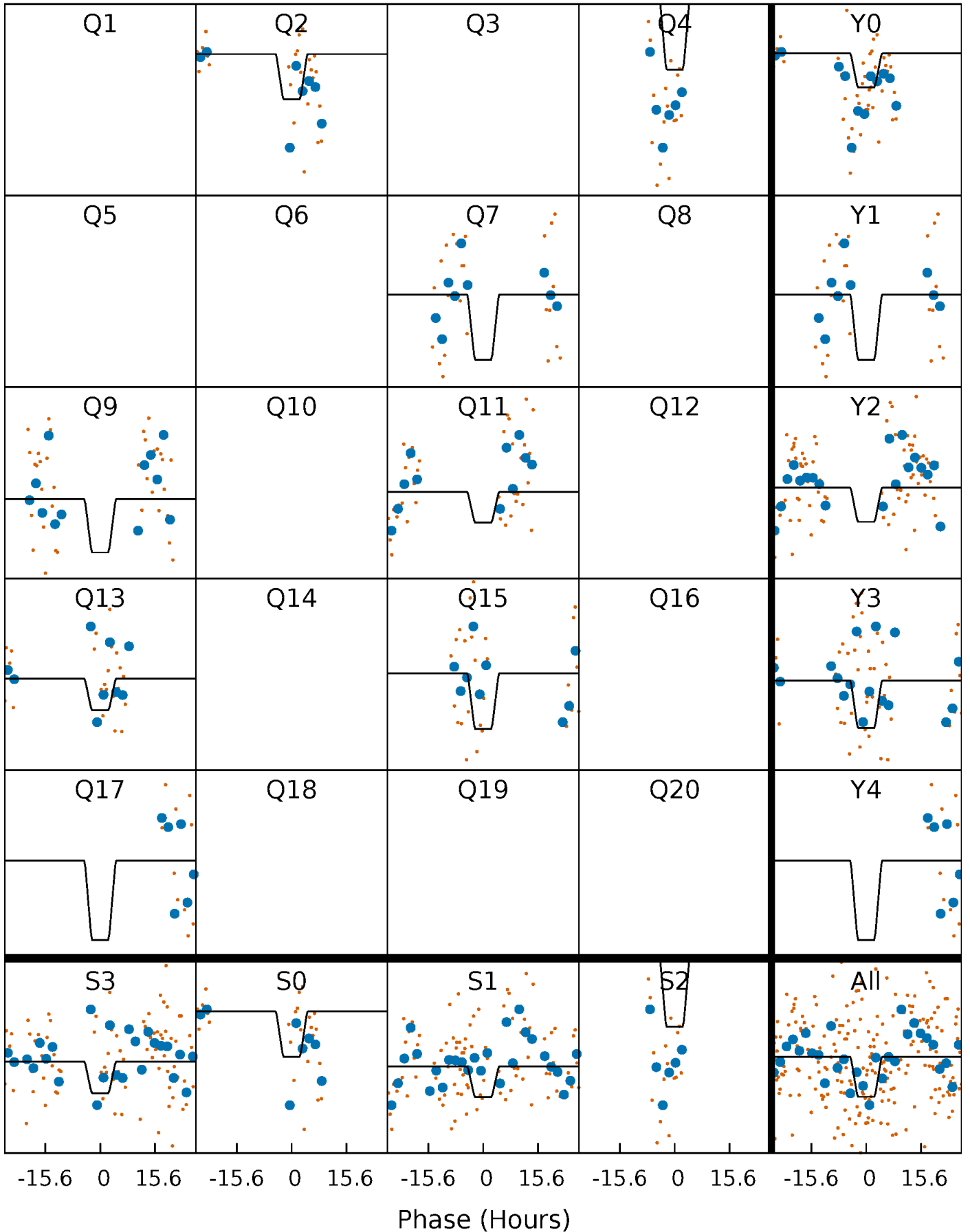
DV Quarter-Phased Transit Curves

TCE 009654875-02 $P=190.756774$ Days $T_0=251.408199$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

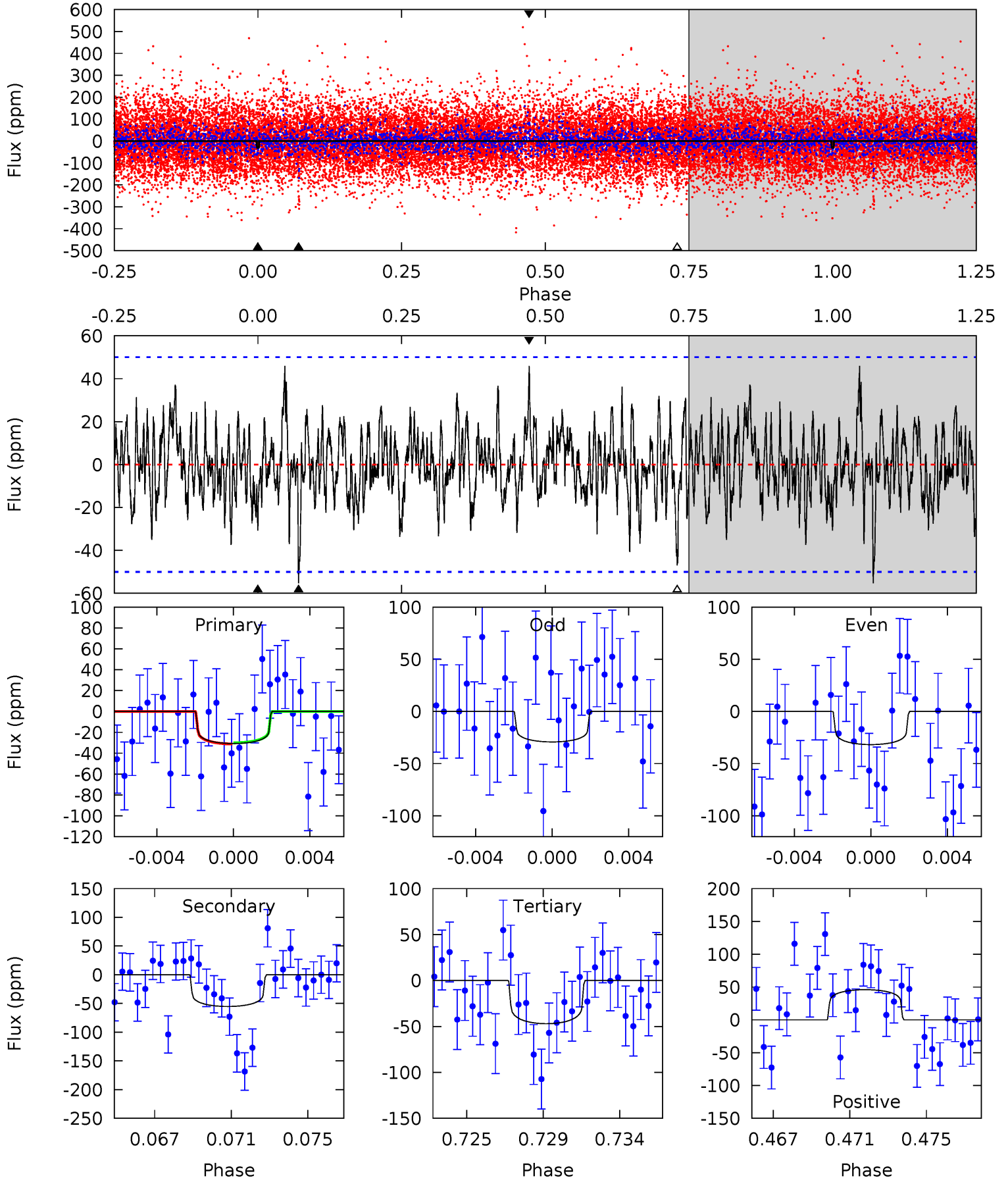
TCE 009654875-02 P=190.774527 Days $T_0=251.228207$ (BKJD)



DV Model-Shift Uniqueness Test

009654875-02, P = 190.756774 Days, E = 60.651425 Days

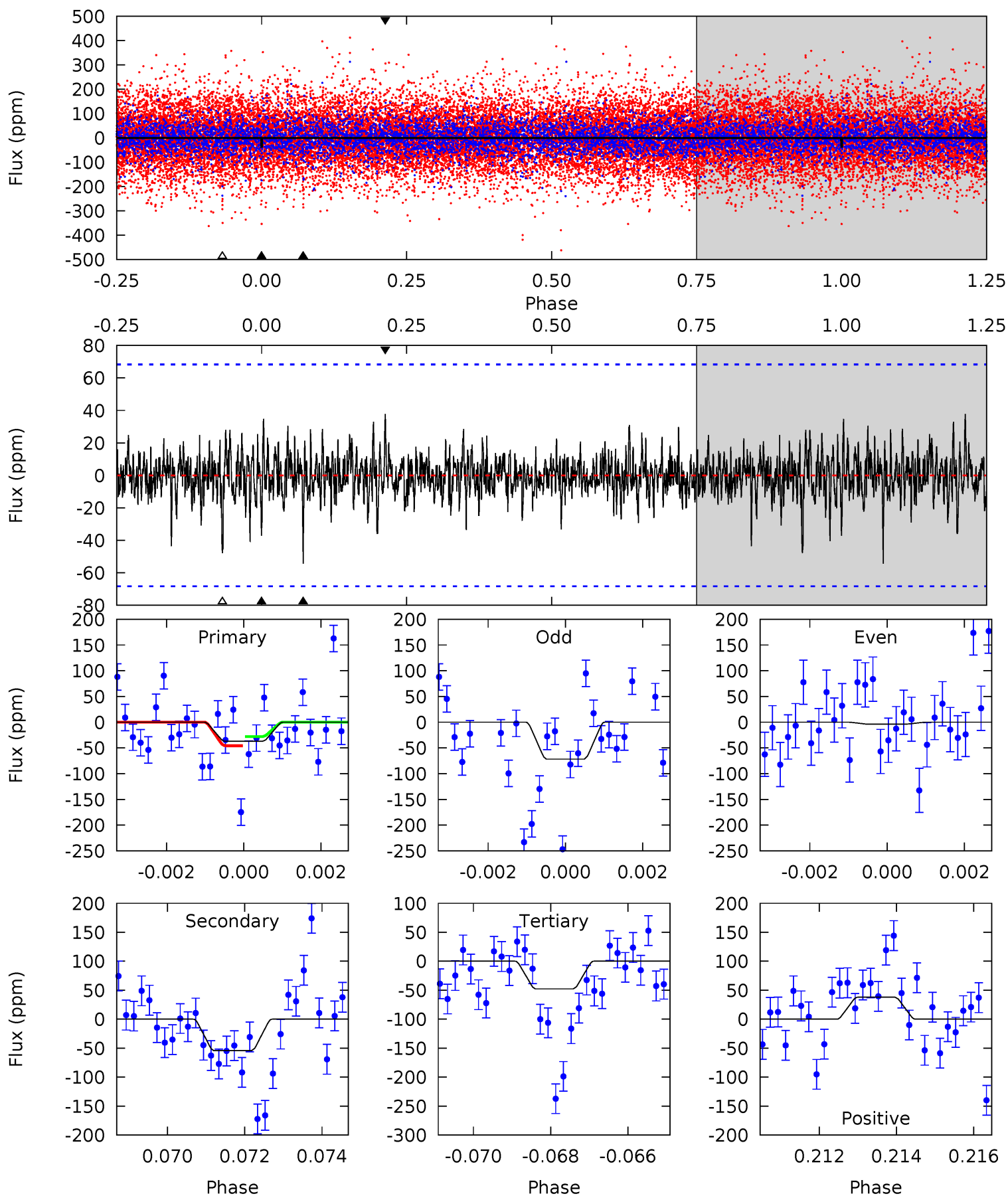
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.18	5.73	4.88	4.77	5.19	2.87	1.44	-1.69	-1.58	0.85	0.96	0.13	1.64	0.45	0.06



Alt Model-Shift Uniqueness Test

009654875-02, $P = 190.774527$ Days, $E = 60.453680$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.89	4.24	3.73	2.95	5.33	3.09	0.81	-0.84	-0.06	0.51	1.28	2.70	1.03	0.41	0.68



Stellar Parameters For KIC 009654875

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7495^{+235}_{-314}	$3.926^{+0.266}_{-0.123}$	$-0.100^{+0.200}_{-0.350}$	$2.389^{+0.520}_{-0.845}$	$1.754^{+0.195}_{-0.391}$	$0.181^{+0.317}_{-0.077}$
	+3%/-4%	+7%/-3%	+200%/-350%	+22%/-35%	+11%/-22%	+175%/-42%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009654875-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-55 ± 10	$2.18^{+1.04}_{-0.96}$	797^{+56}_{-72}	6690^{+2848}_{-1072}	3804^{+8042}_{-2025}
Alt.	-54 ± 13	$2.21^{+0.98}_{-0.92}$	791^{+60}_{-66}	6683^{+2351}_{-1115}	3716^{+6903}_{-2012}

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

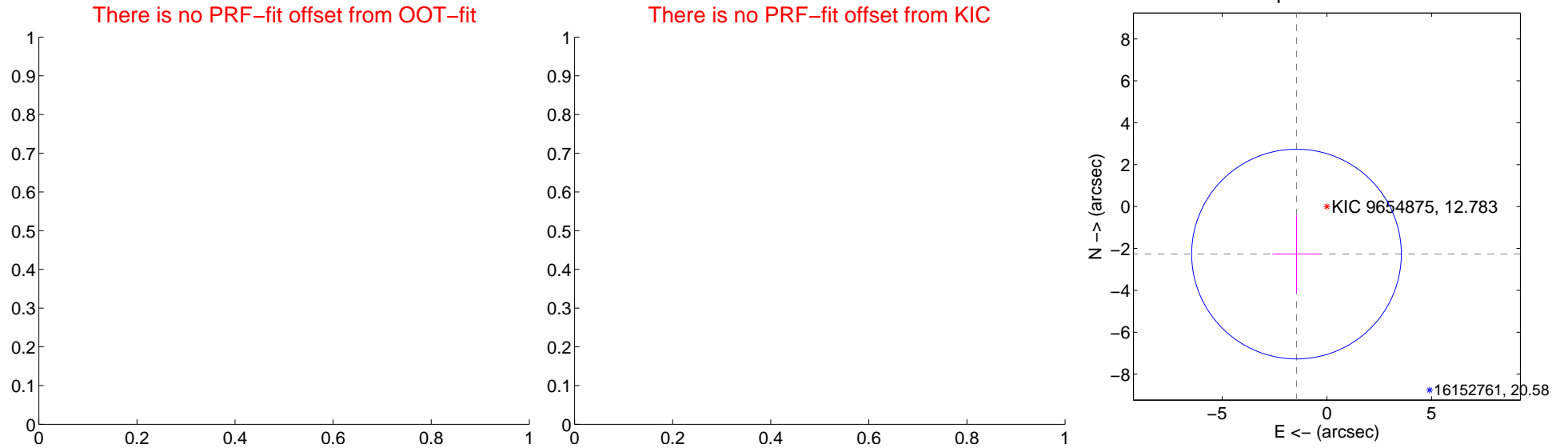
DV Centroid Data

Supplemental centroid analysis for 009654875-02. Kepler magnitude: 12.78. Transit SNR 5.55

There are 0 quarters with good PRF difference image offsets

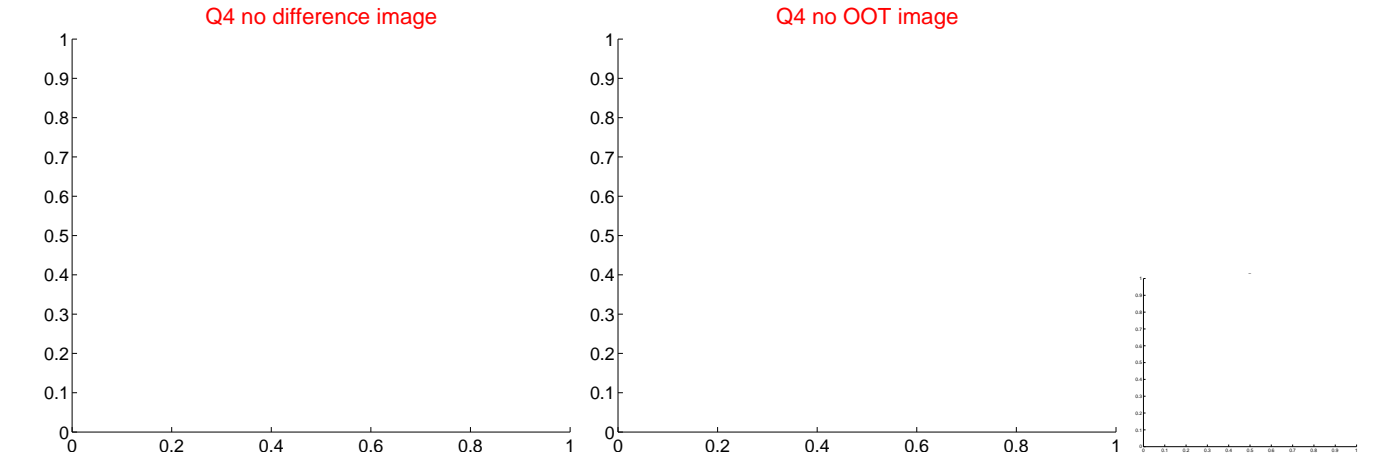
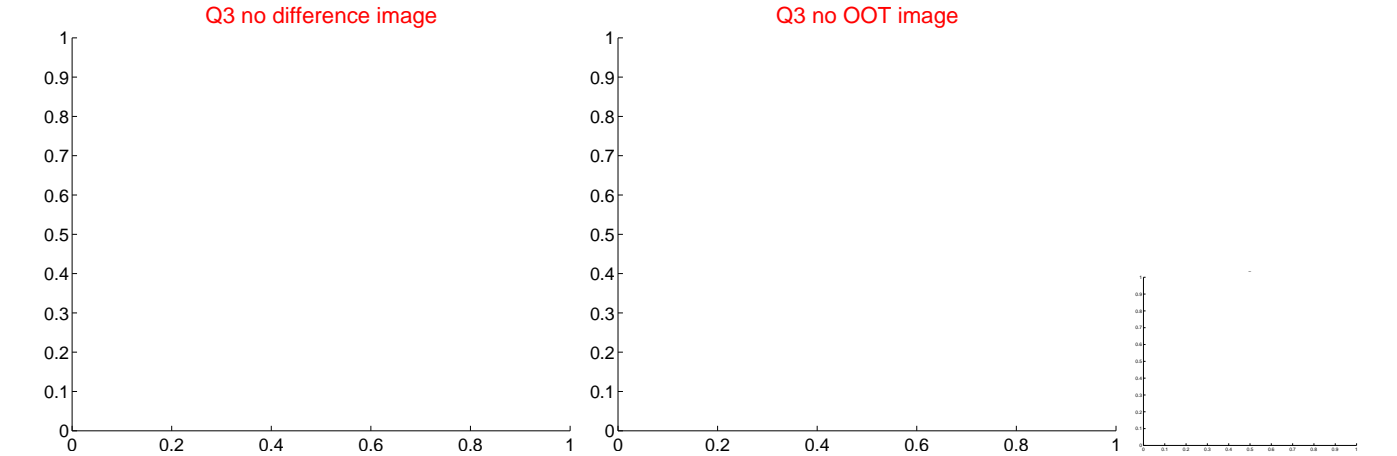
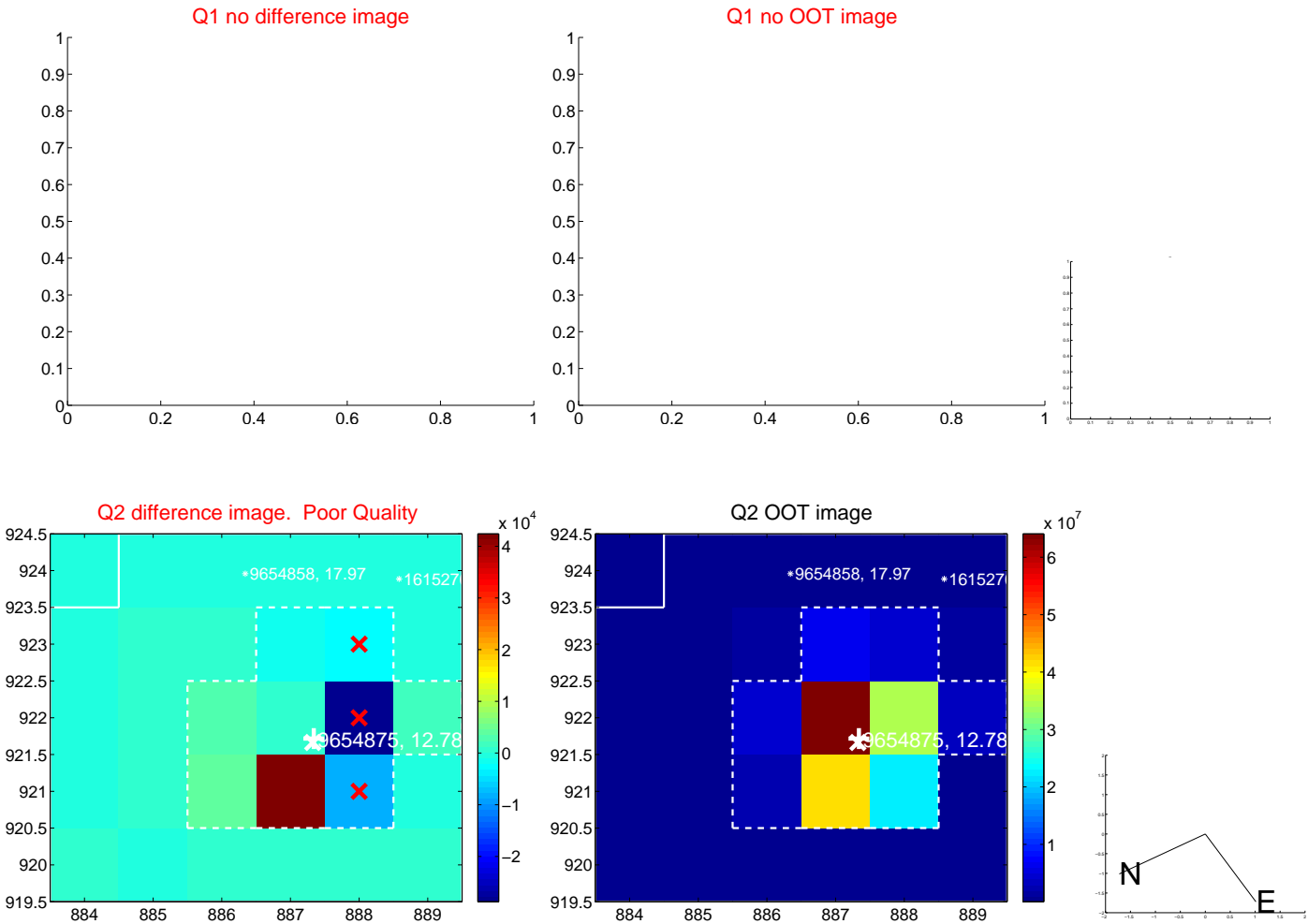
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	2.69 ± 1.67	1.61	1.45 ± 1.15	-2.27 ± 1.84



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

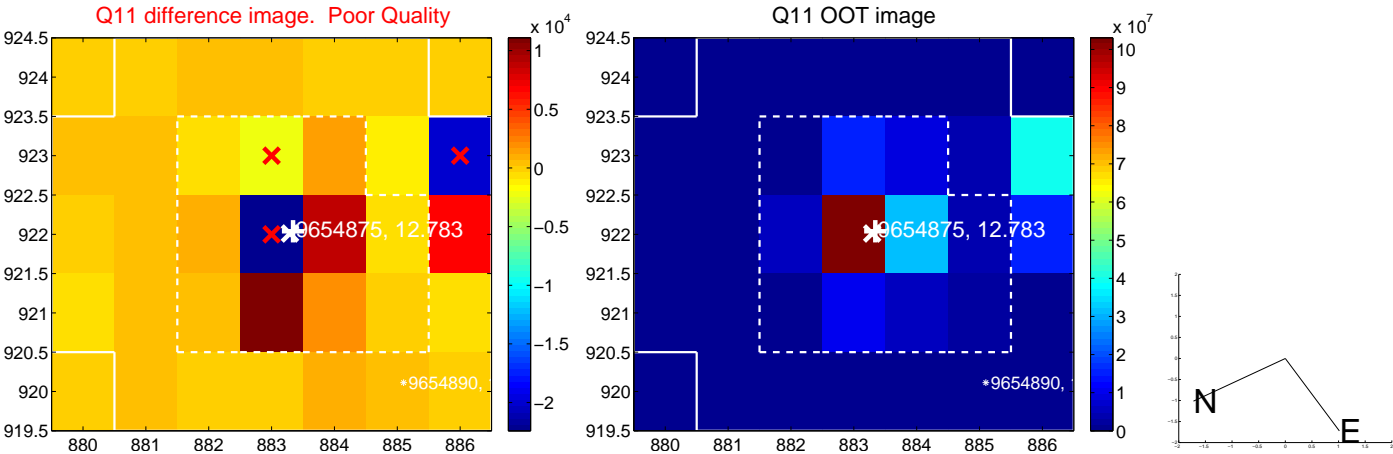
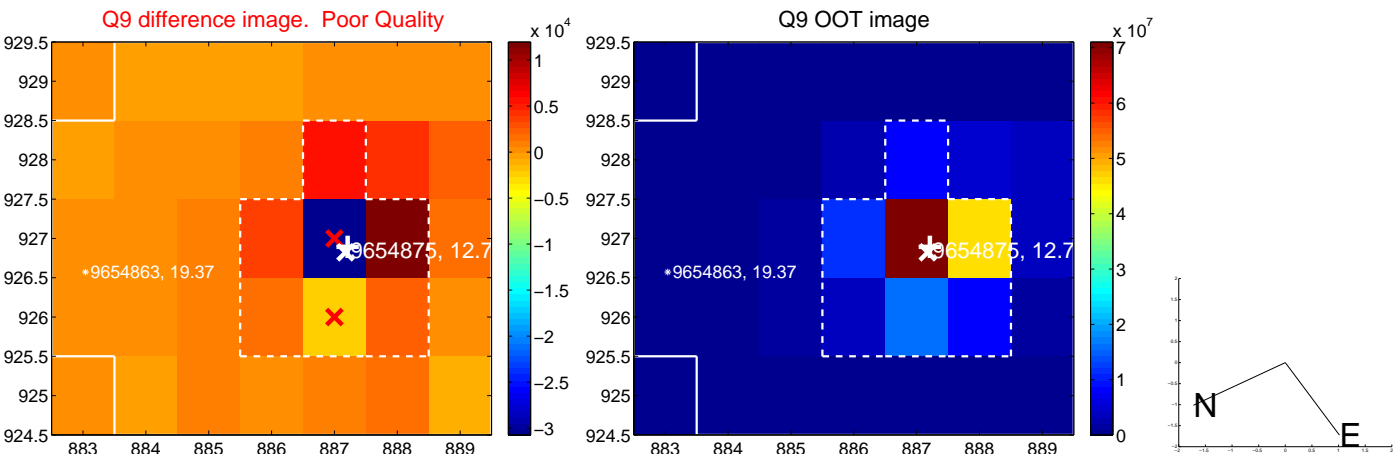
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



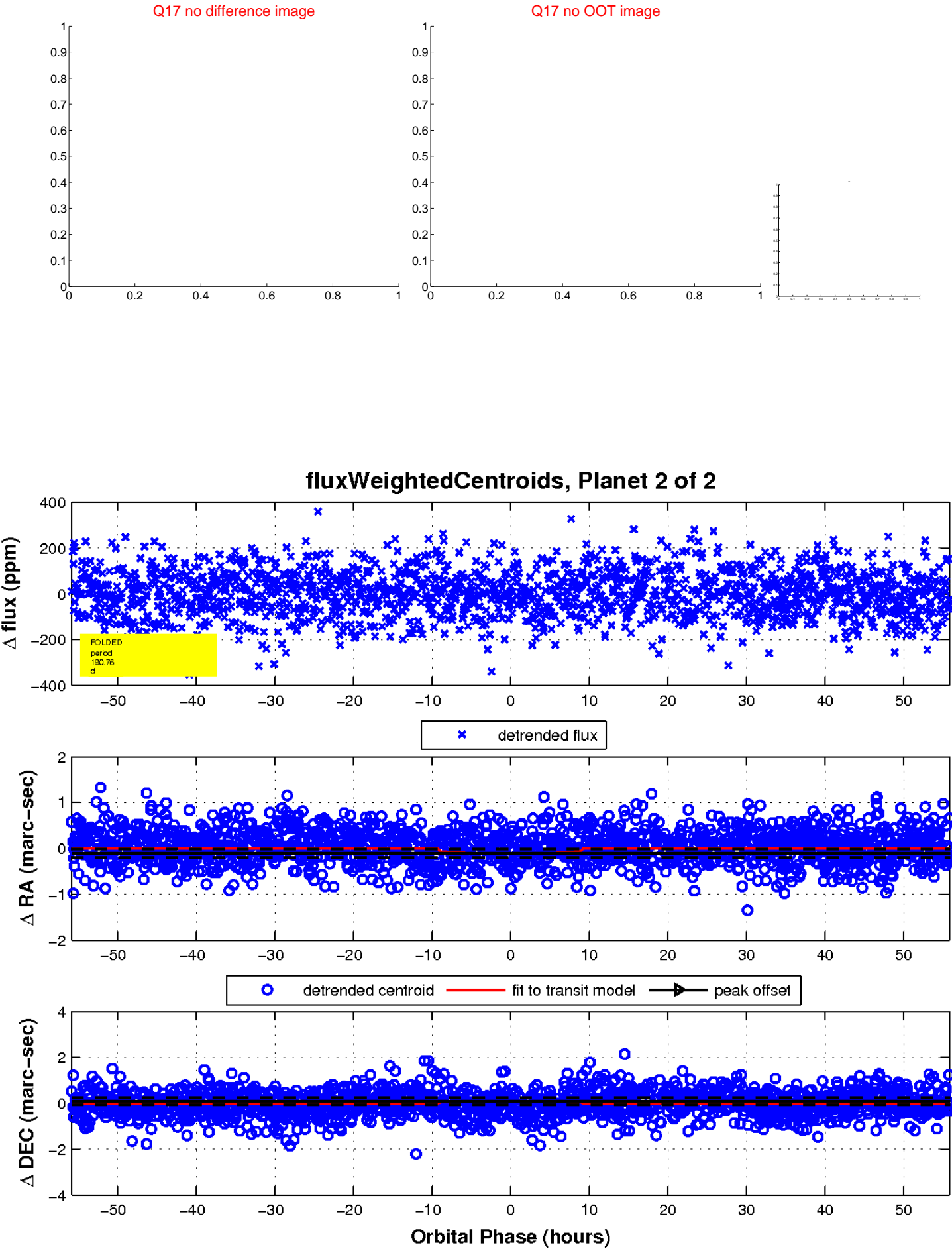
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UKIRT Image

Declination

